

Green Taxation in China: A Possible  
Consolidated Transport Fuel Tax to Promote  
Clean Air?

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# GREEN TAXATION IN CHINA: A POSSIBLE CONSOLIDATED TRANSPORT FUEL TAX TO PROMOTE CLEAN AIR?

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## I. INTRODUCTION

In the 1960s, due to rapid industrial development, a series of grave environmental accidents occurred in a number of countries.<sup>1</sup> Man-made environmental harms, such as dangerous water and air pollution, destruction and depletion of irreplaceable resources, have posed a major threat to the existence and development of mankind.<sup>2</sup>

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1. See, e.g., Neil Gunningham, *Environment Law, Regulation and Governance: Shifting Architectures*, 21 J. ENVTL. L. 179, 182 (2009) (noting that America saw several environmental disasters in the 1960s, in particular oil spills in California, and the Cuyahoga River fire in 1969 (in Ohio)); Michael C. Risberg, *Plain Language Interpretation Gone Awry: The New Paradigm of Pesticides, Water Pollution, and the Inefficient, Ineffective Overlap of Statutory Schemes*, 16 MO. ENVTL. L. & POL'Y REV. 711, 711 (2009). Japan also had an environmental disaster at the time. See Ministry of the Environment, Government of Japan, *Minamata Disease: The History and Measures*, <http://www.env.go.jp/en/chemi/hs/minamata2002/ch2.html> (describing the outbreak of mercury related nervous disorders brought on by the manufacturing activities of Chisso Co., Ltd. in Minamata City, Japan during the 1950-1970 period).

2. Declaration of United Nations Conference on the Human Environment, June 16, 1972, U.N. Doc. A/Conf.48/14/Rev. 1 (1973), available at <http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=97&ArticleID=1503&l=en> [hereinafter Stockholm Declaration].

We have begun to face increasingly severe environmental problems.<sup>3</sup> In 1972, the United Nations Environment Program (UNEP) adopted the Declaration of the United Nations Conference on the Human Environment (Stockholm Declaration), which, for the first time, raised concerns about the preservation and enhancement of the human environment for the purpose of development of mankind.<sup>4</sup> In 1987, the World Commission on Environment and Development published a report called, *Our Common Future* (The Report).<sup>5</sup> The Report recaptured the spirit of the Stockholm Declaration and helped make the concept of environmentally sustainable development widely accepted, in principle, at least, by many countries.<sup>6</sup> The shorthand characterization of sustainable development means development that meets the needs of the present without compromising the ability of future generations to meet their own needs.<sup>7</sup> The Report called for collective action by all nation-states to participate in finding solutions to the environmental “tragedy of the commons.”

Among various measures for protecting the environment and fairly distributing natural resources across regions and generations, taxation can serve as an important instrument to help achieve this goal. The economic rationale of environmental taxes or green taxes often rests on what Arthur Cecil Pigou,<sup>8</sup> a British economist, said about negative

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3. See UNITED STATES GLOBAL CHANGE RESEARCH PROGRAM, GLOBAL CLIMATE CHANGE IMPACTS IN THE U.S., KEY FINDINGS (2009), available at <http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/key-findings>.

4. Stockholm Declaration, *supra* note 2.

5. U.N. World Comm’n on Env’t and Dev, *Report of the World Commission on Environment and Development: Our Common Future*, U.N. Doc. A/42/427/Annex, available at <http://www.un-documents.net/wced-ocf.htm> [hereinafter WCED Report].

6. See Ricardo Ramirez, *Communication: A Meeting Ground for Sustainable Development*, in THE FIRST MILE OF CONNECTIVITY (Don Richardson & Lynnita Paisley eds., 1998).

7. WCED Report, *supra* note 5, pt. IV.

8. See N. Gregory Mankiw, *Smart Taxes: an Open Invitation to Join the Pigou Club*, 35 E. ECON. J. 14 (2009); see also Janet Milne, *Environmental Taxation: Why Theory Matters*, in 1 CRITICAL ISSUES IN ENVIRONMENTAL TAXATION (Janet Milne et al. eds., 2003).

A.C. Pigou [1877-1959] is “best known for his work in welfare economics.” In his book, *The Economics of Welfare*, he developed Alfred Marshall’s “concept of externalities, costs imposed or benefits conferred on others that are not taken into account by the person taking the action.

externalities, which are caused by pollution or the misuse of resources.<sup>9</sup> The existence of negative externalities can lead to market failures, for instance, when a company produces too much and at prices too low for the efficient allocation of resources in the economy.<sup>10</sup> Pigou came up with the notion that taxes could be used to combat negative externalities, and in comparison with the alternative measure, regulation, taxes raise revenue and respond

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He argued that the existence of externalities is sufficient justification for government intervention. If someone is creating a negative externality . . .

Pigou advocated a tax on such activities to discourage them. . . . Pigou advocated subsidies for activities that created . . . positive externalities.

These are now called Pigovian taxes and subsidies, respectively.”

Library of Economics and Liberty, Arthur Cecil Pigou, <http://www.econlib.org/library/Enc/bios/Pigou.html>, (last visited Aug. 18, 2010). Pigou’s analysis was later on attacked by Ronald Coase and ‘public choice’ theorists and other economists as well. *Id.* However, many economists still advocate Pigouvian taxes as a more efficient way of dealing with pollution than government standards. *Id.*

9. See Library of Economics and Liberty, *supra* note 8. Basically, an externality “is a cost or benefit arising from an economic transaction that falls on a third party and that is not taken into account by those who undertake the transaction.” H. Gibson, *Externalities: Implications for Allocative Efficiency and Suggested Solutions* (1996), <http://users.hunterlink.net.au/~ddhrg/econ/ext1.html>. In a market economy an externality occurs where there is “a direct effect of the actions of one person or firm on the welfare of another person or firm in a way which is not transmitted by market prices.” *Id.* These externalities arise from “the effects that consumption of an item by one consumer may have on the welfare of others” or from “the effects that the production of one product may have on the production possibilities of others.” *Id.* Externalities may take two forms: negative externality (external costs) and positive externality (external benefits). *Id.* “A negative externality exists where consumption or production of a good generates a cost borne by someone outside of the production or consumption of that good.” *Id.* The most typical example is the pollution caused by many industries. *Id.* A positive externality occurs where benefits accrues to someone outside of the production or consumption of a good. *Id.* An example might be when individuals consume vaccine against the influenza virus, those who do not vaccinated themselves benefit from a reduced prevalence of the virus in the community. *Id.*; see also D. MCTAGGART, C. FINDLAY & M. PARKIN, *ECONOMICS* 467 (1992).

10. KALLE MÄÄTTÄ, *ENVIRONMENTAL TAXES: AN INTRODUCTORY ANALYSIS* 4 (2006). Basic economic theory recognizes the existence of externalities and their potential negative effects. See *id.* To the extent that green taxes correct for externalities such as pollution, they correspond with mainstream economic theory. In practice, however, setting the correct taxation level or the tax collection system is difficult, and may lead to further distortions or unintended consequences.

automatically to such market changes as the lowered cost of production, as well as provide incentives to reduce pollution.<sup>11</sup> Pigou's idea laid the theoretical foundation for the application of green taxation.<sup>12</sup>

China has also developed significant policies to address environmental and development issues.<sup>13</sup> Contrary to the common view, a variety of domestic programs and policies relating to the environment and natural resources have been formulated and applied seriously by the government in recent years.<sup>14</sup> The central government has put environmental protection at the centre of its macro-policy-making to achieve sustainable economic growth.<sup>15</sup> Although, strictly speaking, environmental taxes have not been applied in China, an environment-related tax and charge system has been implemented in China for some years.<sup>16</sup> The difficulties of introducing a comprehensive environmental taxation system are caused by various factors, such as the zealotry for economic growth of local governments and conflicting interests produced by the de facto "fiscal federalism" in taxation.<sup>17</sup> This paper is focused on

11. See Mankiw, *supra* note 8.

12. See MÄÄTTÄ, *supra* note 10, at 26.

13. THE STATE COUNCIL OF THE PEOPLE'S REPUBLIC OF CHINA, CHINA NATIONAL ENVIRONMENTAL PROTECTION PLAN IN THE ELEVENTH FIVE YEARS (2006-2010) (2008), available at <http://english.sepa.gov.cn/download/Documents/200803/P020080306440313293094.pdf>.

14. Karen Meirik, *China Takes the Environment More Seriously*, RADIO NETHERLANDS WORLDWIDE, Dec. 12, 2007, <http://static.rnw.nl/migratie/www.radionetherlands.nl/currentaffairs/chi071012-redirected>.

15. See OUTLINE OF THE ELEVENTH FIVE-YEAR PLAN FOR NATIONAL ECONOMIC AND SOCIAL DEVELOPMENT OF THE PEOPLE'S REPUBLIC OF CHINA (passed by the 10th National People's Congress on March 14, 2006), available at [http://en.ndrc.gov.cn/hot/t20060529\\_71334.htm](http://en.ndrc.gov.cn/hot/t20060529_71334.htm) [hereinafter NATIONAL DEVELOPMENT OUTLINE].

16. See *infra* Part I.A.1-2 (describing the concept of environmental/green taxes and how they apply in the context of Chinese law).

17. China is a unitary state. KENNETH G. LIEBERTHAL & DAVID M. LAMPTON, BUREAUCRACY, POLITICS AND DECISION MAKING IN POST-MAO CHINA 82 (Sheila Levine, ed., 1992). The taxing power is centralized in the central government. See *id.* 41-43. But the 1994 tax reform introduced a tax-sharing system and separated tax administration into central and local. CHRISTINE P.W. WONG, CENTRAL-LOCAL RELATIONS REVISITED: THE 1994 TAX SHARING REFORM AND PUBLIC

issues of green taxation in China. Section 2 provides an overview of the concept of green taxes, the current tax law system regarding the environment and resources, and environmental problems in China. Section 3 examines the possibility of applying a consolidated fuel tax in China,<sup>18</sup> beginning with a discussion of the existing tax and charge system on the consumption of petroleum-based products and usage of vehicles. Section 4 goes further to discuss how to impose a consolidated fuel tax in China. By drawing on the experience of some developed countries and regions like the UK and Hong Kong, the paper proposes that in order to introduce such a tax to China, basic issues like the tax base, tax rate, imposition principles and tax administration need to be carefully examined. Section 5 provides the conclusion.

## II. AN OVERVIEW: CONCEPT AND LEGAL FRAMEWORK OF GREEN TAXATION

### A. *What is an Environmental Tax?*

#### 1. General Definition

Green taxes, also called environmental taxes, pollution taxes, ecological taxes, Pigouvian taxes and ecotaxes, have not been defined unambiguously and unanimously.<sup>19</sup> There have been attempts to

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EXPENDITURE MANAGEMENT IN CHINA 9 (2000), available at [http://www.cuhk.edu.hk/gpa/wang\\_files/C%20Wong%202000.pdf](http://www.cuhk.edu.hk/gpa/wang_files/C%20Wong%202000.pdf). (The term “central government” in this source refers to the national government in Beijing and “local government” refers to the other governments at the provincial level in parts of China).

18. “A fuel tax (also known as a petrol, gasoline or gas tax, or as a fuel duty) is a sales tax imposed on the sale of fuel. In most countries the fuel tax is imposed on fuels which are intended for transportation. Fuels used to power agricultural vehicles, and/or home heating oil which is similar to diesel are taxed at a different, usually lower, rate.” AbsoluteAstronomy.com, Fuel Tax, [http://www.absoluteastronomy.com/topics/Fuel\\_tax](http://www.absoluteastronomy.com/topics/Fuel_tax) (last visited Mar. 3, 2010). This paper concentrates on discussing road transport fuel taxation including taxes and charges applying to transport fuel (and vehicles). However, viewpoints expressed in this paper may be applied to taxes on the use of fuel in sectors other than transportation in China. “Consolidated fuel taxation” in this paper thus means an imposition system bringing all taxes and charges related to the use or consumption of road transport fuel into a single system.

19. See MÄÄTTÄ, *supra* note 10, at 15.

create general definitions, for instance, the OECD refers to a green tax as “a tax based on polluting emissions (e.g. biological oxygen demand (BOD) discharges) or on disamenities expressed by some appropriate method of measurement (e.g. an index of annoyance) or on other parameters such as inputs.”<sup>20</sup> The scope of green taxes depends on the specific environmental goal of the taxes.<sup>21</sup> If environment is broadly defined, part of the excise tax on alcohol (in terms of its effect on the social environment), and taxes on tobacco (in terms of improving the air quality of non-smokers), could be perhaps defined as green taxes.<sup>22</sup> Many green taxes are related to pollution; that is, they aim at reducing sulphur dioxide and carbon dioxide emissions, waste and other pollutants in the environment.<sup>23</sup> Moreover, green taxes may be associated with resource utilization, including the use of land or water resources.<sup>24</sup> In this sense, the term “green tax” “is an umbrella concept for two kinds of tax, a pollution tax and a resource tax.”<sup>25</sup> The broadest definition of green taxes encompass all the taxes that are related to the environment and natural resources, as well as government’s tax policies that may have an effect on the environment because those taxes shape certain economic activities.<sup>26</sup>

It is worth noting that there are considerable differences between green taxes and charges.<sup>27</sup> Taxes are unrequited payments in which benefits provided by governments to taxpayers are not normally in proportion to their payment.<sup>28</sup> Charges are paid by individuals and companies to authorities in return for services received.<sup>29</sup> The revenue generated by green taxes goes to the general budget or is earmarked for a broad range of environmental expenditures. Green charges can roughly be categorized into user and administrative charges. User charges have been defined as payments to meet the

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20. *See id.* (quoting ORG. FOR ECON. CO-OPERATION & DEV. (OECD), POLLUTION CHARGES IN PRACTICE (1980)).

21. *See id.*

22. *See id.*

23. *Id.* at 16.

24. *See id.*

25. *Id.*

26. *See id.*

27. *See id.* at 17.

28. *See id.*

29. *See id.*

costs of the collective or public treatment of effluent and waste, while administrative charges are payments to authorities for services rendered, for example, for the registration of chemicals and enforcement of regulations.<sup>30</sup> Administrative charges have been divided into license fees and registration or control fees.<sup>31</sup> Nonetheless, it is difficult to draw the borderline between green taxes and green charges precisely.

From a fiscal point of view, green taxes have a double-dividend gain under certain conditions. In addition to increasing welfare due to lower pollution externalities, a “green” dividend, green taxes raise revenues that can be used to lower other pre-existing tax distortions, resulting in welfare gains from a smaller deadweight loss of the tax system, or an “efficiency” dividend.<sup>32</sup> As some economists have said, green taxes stand out from ordinary taxation in that they have the potential to improve the efficiency of the tax system and the wider economy by improving resource allocation.<sup>33</sup> Taxes that encourage better environmental outcomes contribute to sustainability and inter generational equity, and may often benefit disadvantaged groups of society.<sup>34</sup> For example, a tax differential discouraging the use of leaded petrol contributes to improved air quality and child health outcomes in poor urban areas.<sup>35</sup> It is also clear that some potential green taxes may widen the revenue base and raise significant amounts of revenue, allowing less desirable taxes to be reduced or removed.<sup>36</sup>

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30. *See id.*

31. *See id.* (citing J. B. OPSCHOOR & H.B. VOS, *ECONOMIC INSTRUMENTS FOR ENVIRONMENTAL PROTECTION* 67 (1989)).

32. *See, e.g.,* Daniel McCoy, *Reflections on the Double Dividend Debate*, in *ECOTAXATION* 201-14 (Tim O’Riordan ed., 1997); Lawrence H. Goulder, *Environmental Taxation and the Double Dividend: A Reader’s Guide*, 2 *INT’L TAX & PUB. FIN.* 157-84 (1995); A. Lans Bovenberg, *Green Tax Reforms and the Double Dividend: An Updated Reader’s Guide*, 6 *INT’L TAX & PUB. FIN.* 421-43 (1999).

33. *See* Milne, *supra* note 8.

34. *See* *China Considers Levying Environmental Tax on Polluter*, *BEIJING TODAY*, Oct. 19, 2007, available at <http://bjtoday.ynet.com/article.jsp?oid=24783901&pageno=1>.

35. *See id.*

36. *See* Goulder, *supra* note 32; *see also* McCoy, *supra* note 32; and *China Considers Levying Environmental Tax on Polluter*, *supra* note 34.



“The notion of a double dividend for the environment and the economy, even if controversial on theoretical grounds could be an important pillar in promoting fiscal reform . . . this implies that the environmental effects of fiscal reform should be taken into account from the outset.”<sup>37</sup> In the meantime, the introduction of green taxes “should be supported by a reduction in distortionary taxes.”<sup>38</sup> In this manner general welfare could be increased and negative distributional impacts avoided.<sup>39</sup>

## 2. Definition within the Chinese Law Context

Currently, there are no green taxes in a strict sense in China, though China’s tax system applies several categories of taxes related to environmental resources.<sup>40</sup> Under China’s existing tax law system, the term “green taxes” or “environmental taxes” is used in this paper as a generic term for taxes associated with natural resources and the environment.

As with many other countries, taxes and charges are considered as two different concepts in China. A tax is levied on the community as a whole, regardless of who captures the benefits of the public goods and services funded thereby.<sup>41</sup> The revenue from taxes goes into the general budget.<sup>42</sup> By contrast, a charge is (at least in theory) imposed on specific beneficiaries in proportion to the services they personally receive.<sup>43</sup> The revenue collected is used for defined purposes.<sup>44</sup> As a

37. Jinnan Wang et al., *Taxation and the Environment in China: Practice and Perspectives*, in ENVIRONMENTAL TAXES: RECENT DEVELOPMENTS IN CHINA AND OECD COUNTRIES 10 (1999).

38. *Id.*

39. *Id.*

40. See Wang et al., *supra* note 37, at 61, 92.

41. See Law of Tax Administration (promulgated by the Standing Comm. Nat’l People’s Cong., Sept. 4, 1992, amended Apr. 28, 2001, effective May 1, 2001) arts. 2-4 (P.R.C.), available at <http://202.108.90.130/n6669073/n6669088/6887981.html>; Budget Law (promulgated by the Nat’l People’s Cong., Mar. 22, 1994, effective Jan. 1, 1995) art. 19 (P.R.C.), available at [http://www.fdi.gov.cn/pub/FDI\\_EN/Laws/law\\_en\\_info.jsp?docid=50897](http://www.fdi.gov.cn/pub/FDI_EN/Laws/law_en_info.jsp?docid=50897). For the comparison between a tax and a charge in the Chinese context, see Wang et al., *supra* note 37, at 90, 91.

42. Budget Law art. 19.

43. See Administrative License Law (promulgated by the Standing Comm. Nat’l People’s Cong., Aug. 27, 2003, effective July 1, 2004) arts. 12, 13, 58, 59

result, the application method and the revenue destination which apply to taxes and charges are different in China.

This paper is focused on green taxes but it also looks at some environmental-related charges. Although pollution charges are not regarded as a pollution tax by the government, a pollution levy system has been applied in China since 1982.<sup>45</sup> This has played a positive role in reducing pollution and financing environmental protection investments.<sup>46</sup> The levy system has undergone substantial reform recently in order to adapt it to the conditions of a deepening market economy and the new environmental objectives.<sup>47</sup> As reform progresses in this area it would be desirable for most (if not all) pollution charges to be converted to (volume, usage, etc. based) pollution taxes.

### *B. The Legal System Governing Environmental-Related Taxes in China*

China undertook a major tax reform in 1994, resulting in a policy framework that is more consistent with the needs of a market-based economy.<sup>48</sup> Five environmentally-related taxes have been introduced to China, i.e., resource tax, consumption tax, vehicle tax, urban

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(P.R.C), *available at*  
[http://www.fdi.gov.cn/pub/FDI\\_EN/Laws/GeneralLawsandRegulations/BasicLaws/P020060620319981258285.pdf](http://www.fdi.gov.cn/pub/FDI_EN/Laws/GeneralLawsandRegulations/BasicLaws/P020060620319981258285.pdf); Wang et al., *supra* note 37, at 91.

44. See Wang et al., *supra* note 37, at 91.

45. *China Considers Environmental Tax*, ECONOMIC OBSERVER NEWS, June 15, 2009, at 3, (Liu Peng trans.) *available at* <http://www.eeo.com.cn/ens/Politics/2009/07/01/142354.shtml>. In 1982, the State Council promulgated the Provisional Method on the Imposition of Pollution Charges. *Id.* In 1988, the State Council issued the Provisional Method on the Paid Use of Special Funds on Abatement of Pollutant Sources. These two administrative regulations have been replaced by the Regulations on the Collection and Use of Pollution Charges (promulgated by the St. Council in 2003) (P.R.C.).

46. Wang et al., *supra* note 37, at 82.

47. *Id.* According to some studies, prior to the recent reform in 2003, the previous levy system had some critical problems, such as no consideration of total amount of pollution discharged, too low rate schedules on pollutions, and lack of control over the charge yields. These problems were caused by ambiguity of related regulations and rules as well as other factors. The 2003 reform has addressed some of these problems. See *id.* at 83-84, 90.

48. *Id.* at 88.

construction and maintenance tax, and land use tax. They each have a direct or indirect relationship with environmental protection.

Specifically, the resource tax was adopted on October 1, 1984 as part of the 1984 tax reform.<sup>49</sup> From the beginning of 1994, new provisional regulations on the resource tax replaced the old regulations.<sup>50</sup> The new regulations govern the imposition of tax on mineral resources in a broad sense and salt.<sup>51</sup> Taxable mineral products include crude oil, natural gas, coal, metal mineral products and other non-metal mineral products.<sup>52</sup> The amount of tax payable by a specific taxpayer, e.g. a coal mine operator, is dependent, in the main, on the resource type and it is independent of the environmental effects of resource uses such as atmospheric pollution caused by combustion of high sulfur coal.<sup>53</sup>

The consumption tax was introduced to China's tax system during the 1994 tax reform, which purported to constrain consumption of certain goods as well as modify behavior and at the same time raise tax revenues.<sup>54</sup> The provisional regulations on the consumption tax promulgated by the State Council in 1993 were amended at the end of 2008.<sup>55</sup> The tax now is imposed on 14 types of consumer goods.<sup>56</sup> Taxable items related to the environment include petrol, diesel, aviation kerosene, automobile tires, motorcycles, cars, yachts, disposable wooden chopsticks, and arguably tobacco, wine and liquor.<sup>57</sup> Since energy consumption and vehicle use are closely related to air pollution, the most serious environmental problem in

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49. *See id.* at 67-68; *see also* LIU ZOU, THIRTY YEARS OF TAX REFORM IN CHINA, at 74, 79, 93, 123-124 (2008).

50. Interim Regulations on Resource Tax (promulgated by the St. Council, Dec. 25, 1993, effective Jan. 1, 1994) art. 16 (P.R.C.) [hereinafter Resource Tax Regs].

51. Resource Tax Regs, art. 1.

52. Resource Tax Regs, Resource Tax Taxable Items and Tax Amount Range Tbl.

53. Resource Tax Regs, art. 5. According to the provision, tax payable is computed on the basis of assessable volume of taxable product and the applicable tax amount per unit. *Id.*

54. *See* LIU ZOU, *supra* note 49, at 148, 169; *see also* Wang et al., *supra* note 37, at 69.

55. Interim Regulations on Consumption Tax (promulgated by the St. Council, Dec. 13, 1993, amended Nov. 5, 2008, effective Jan. 1, 2009) Order No. 539 (P.R.C.) [hereinafter Amended CT Regs].

56. *See* Amended CT Regs, Schedule of Items and Rates of Consumption Tax.

57. *See id.*

China, I will return to review the consumption tax on fuel and vehicles in detail in Section 3.

The vehicle tax is composed of the vehicle acquisition tax and the vehicle (and vessel) tax.<sup>58</sup> The vehicle acquisition tax applies to vehicles purchased that are specified as taxable vehicles according to the Provisional Regulations on Vehicle Acquisition Tax.<sup>59</sup> This tax is administered by the State Administration of Taxation (SAT) and, accordingly, the tax revenue belongs to the central government, being used specifically for traffic construction work.<sup>60</sup> Motor cars, motorcycles, trams, trailers, and transportation vehicles for farm use constitute taxable vehicles.<sup>61</sup> The tax is payable by the acquirer upon acquisition.<sup>62</sup> Acquisition occurs when taxpayers obtain vehicles through purchase, importation, self-production, or as a gift.<sup>63</sup> The applicable tax rate is ten percent of the vehicle value and the tax is paid in one lump sum.<sup>64</sup> The tax should be paid to the relevant tax authorities at the location where the vehicle is registered.<sup>65</sup> Where vehicles need not be registered (for example, where a vehicle is being used only on a farm and there is no need to apply for a vehicle license plate),<sup>66</sup> taxpayers should report and pay the tax to the relevant tax authorities at the location where the taxpayer is situated. It is required that taxpayers pay tax upon acquisition before registering

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58. The vehicle acquisition tax has applied in China since January 1, 2001. On January 1, 2007, the vehicle (and vessel) tax replaced the vehicle and vessel usage license tax, which was adopted in September 1951 and the vehicle and vessel usage tax, which was adopted in September 1986. See Interim Regulations on Vehicle and Vessel Tax (promulgated by the St. Council, Dec. 27, 2006, effective Jan. 1, 2007) Order No. 482, art. 14 (P.R.C.) [hereinafter VVT Regs].

59. Provisional Regulations on Vehicle Acquisition Tax (promulgated by the St. Council, Oct. 22, 2000, effective Jan. 1, 2001) Order No. 294, art. 1 (P.R.C.) [hereinafter Vehicle AT Regs].

60. Vehicle AT Regs, art. 11; LIU ZOU, *supra* note 49, at 239.

61. Vehicle AT Regs, art. 3.

62. Vehicle AT Regs, arts. 1, 2.

63. Vehicle AT Regs, art. 2.

64. Vehicle AT Regs, arts. 5, 8.

65. Vehicle AT Regs, art. 12.

66. The Rules on Motor Vehicles Registration (promulgated by the Ministry of Public Security, Apr. 30, 2004, amend. Apr. 21, 2008, effective Oct. 1, 2008) art. 5 (P.R.C.).

their vehicles with the vehicle administration division of the public security department.<sup>67</sup>

The vehicle (and vessel) tax is applied to specific types of vehicles and it is administered by local tax bureaus.<sup>68</sup> The main purpose of this tax is to provide funds for local governments to upgrade local public roads and maintain infrastructure.<sup>69</sup> The recently promulgated Interim Regulations on Vehicle and Vessel Tax replaced the old regulations on vehicle and vessel usage tax as well as the vehicle and vessel usage license tax.<sup>70</sup> In general, the tax is levied on motor vehicles (and vessels), and the tax rate is calculated either according to the number of taxable vehicles or according to the net-weight capacity of the taxable vehicles.<sup>71</sup> Passenger vehicles and motorcycles are taxed per item.<sup>72</sup> The annual tax payment for the former is from RMB 60 to 660 depending on the specific size of the vehicle and for the latter it is from RMB 36 to 180.<sup>73</sup> Cargo vehicles and motor-tricycles are taxed according to per ton of net load capacity.<sup>74</sup> The annual tax payment for the former is from RMB 16 to 120, and for the latter is from RMB 24 to 120.<sup>75</sup>

The urban construction and maintenance tax has been applied since January 1, 1985.<sup>76</sup> It is a local tax, which is levied for the purpose of expanding and stabilizing the source of funds for urban infrastructure such as housing, road and bridge maintenance, flood prevention structures, water supply and drainage, afforestation and

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67. Vehicle AT Regs, art. 14.

68. VVT Regs, arts. 1, 2, 5.

69. See Wang et al., *supra* note 37, at 71.

70. VVT Regs, art. 14. Accordingly, the Provisional Regulations on Vehicle and Vessel Usage License Tax promulgated in 1951 and the Provisional Regulations on Vehicle and Vessel Usage Tax promulgated in 1986 ceased no effect. *Id.*

71. VVT Regs, arts. 1, 2, Schedule of Tax Items and Tax Amount of Vehicle and Vessel Tax.

72. VVT Regs, Schedule of the Tax Items and Tax Amount of Vehicle and Vessel Tax.

73. *Id.*

74. *Id.*

75. *Id.*

76. Interim Regulations on Urban Construction and Maintenance Tax (promulgated by the St. Council, Feb. 8, 1985, effective Jan. 1, 1985) art. 10 (P.R.C.) [hereinafter UCMT Regs].

environmental sanitation.<sup>77</sup> Those who are obliged to pay value-added tax (VAT), consumption tax and business tax are subject to the tax.<sup>78</sup> Tax payable is calculated on the basis of the actual amount of VAT, consumption tax and business tax paid by the taxpayers.<sup>79</sup> Rates vary depending on whether the taxpayers are located in cities (seven percent), counties and towns (five percent), or other areas (one percent).<sup>80</sup> The tax is a kind of “green” tax because revenues from the tax have become an important source for investment in environmental protection, in particular in the improvement of urban air and water quality undertaken by local authorities.

The land use tax includes the City and Township Land Use Tax (CTLUT) and the Farm Land Occupation Tax (FLOT). The CTLUT is imposed according to the Provisional Regulations on City and Township Land Use Tax. The city and township land use tax, imposed according to the Provisional Regulations on City and Township Land Use Tax,<sup>81</sup> is aimed at promoting effective use of urban land resources and to adjust differential rents of urban land.<sup>82</sup> The taxpayers are enterprises and individuals who use land in cities, counties, towns, and dedicated industrial and mining areas.<sup>83</sup> CTLUT revenues belong to local government.<sup>84</sup> This tax has generated less than one percent of overall tax revenue since its imposition.<sup>85</sup> Not surprisingly, this tax has had little effect on protecting urban land resources and promoting efficiency in land use.<sup>86</sup> It is in fact a small tax type that supplements the funds for local governments.<sup>87</sup> The FLOT was introduced in April 1987, and

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77. UCMT Regs, arts. 6, 7.

78. UCMT Regs, art. 2.

79. UCMT Regs, art. 3.

80. UCMT Regs, art. 4.

81. Provisional Regulations on City and Township Land Use Tax (promulgated by the St. Council, Sept. 27, 1988, amended Dec. 30, 2006, effective Jan. 1, 2007) art. 1 (P.R.C.) [hereinafter CTLUT Regs].

82. CTLUT Regs, art. 1.

83. CTLUT Regs, art. 2.

84. CTLUT Regs, art. 10.

85. See State of Administration of Taxation of the P.R.C. (SAT), *Statistical Data of Tax Revenues from 1994 to 2008*, <http://www.chinatax.gov.cn/n8136506/n8136593/n8137633/n8138817/index.html>.

86. See Wang et al., *supra* note 37, at 76.

87. See *id.*

was reformed in December 2007.<sup>88</sup> The amount of tax levied varies across provincial regions according to the local average occupation of farm land and the level of economic development.<sup>89</sup> Although tax revenues account for a small portion in the total revenues, the tax has proved effective in controlling, to a degree, arbitrary occupations and misuse of farm land.<sup>90</sup>

Apart from the above taxes, China has applied a nation-wide pollution charge system for over two decades (as noted earlier).<sup>91</sup> The charge system was reformed in 2003.<sup>92</sup> The pollution charge can be considered a quasi-tax on the basis of the “polluter pays” principle.<sup>93</sup> The charge applies to waste water, waste gas, solid waste, and noise pollution.<sup>94</sup> The current system is not based only on the amount of emissions that exceed the relevant national or local pollution discharge standard, but also the total amount of pollution discharged.<sup>95</sup> The charge rates have increased so as to move from a low cost system for polluting activities to one meeting the necessary expense for pollution abatement projects.<sup>96</sup> Paying pollution charges does not exempt the polluters from all liabilities for preventing and abating pollution, compensating for the pollution damages, nor for other liabilities provided for by the administrative regulations.<sup>97</sup> Environmental protection agencies above the county level are responsible for the collection of charges.<sup>98</sup> All pollution charges are

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88. See Provisional Regulations on Farm Land Occupation Tax (promulgated by the St. Council, Apr. 1, 1987, replaced and effective Jan. 1, 2008) art. 16 (P.R.C.).

89. *Id.*, art. 5, para. 2.

90. Wang et al., *supra* note 37, at 77.

91. *Id.* at 78.

92. Jinnan Wang, *The Development of Pollution Charge in China* (Chinese Academy for Environmental Planning, Working Paper at 3), available at <http://www.caep.org.cn/english/paper/The-Development-of-Pollution-Charge-in-China.pdf>.

93. Wang et al., *supra* note 37, at 78.

94. Regulations on the Collection and Use of Pollution Charges (promulgated by the St. Council, Jan. 2, 2003, effective July 1, 2003) art. 12, para. 1 (P.R.C.) [hereinafter CUPC Regs].

95. Wang, *supra* note 92, at 1.

96. See National Development and Reform Commission (NDRC), China's Pollution Charge System, (last updated Apr. 4, 2007), [http://www1.ndrc.gov.cn/jggl/jgqk/t20070404\\_126543.htm](http://www1.ndrc.gov.cn/jggl/jgqk/t20070404_126543.htm).

97. CUPC Regs, art. 12, para. 2.

98. CUPC Regs, art. 3; The Method on Administration of Pollution Charges Collection Standard (promulgated by the State Dev. Planning Comm'n, Ministry of

remitted to the State Treasury, incorporated into the general fiscal budget, and listed as special funds for environmental protection.<sup>99</sup> These funds should be mainly used for financing the following projects: prevention of major pollutant sources, regional pollution prevention, popularization and application of new technologies and techniques on pollution prevention, and other pollution prevention projects decided by the State Council.<sup>100</sup> Despite these improvements, the pollution charge system is still problematic. For instance, the rate schedules applied to major pollutants are still too low to fully make up the pollution abatement cost (thereby resulting in a high cost of compliance but low cost of violation for the polluters), and some local governments remove or hoard funds from the pollution charges for purpose other than environmental protection.<sup>101</sup>

### C. Environmental Problems in China

#### 1. An Overview

China has experienced rapid economic development since the “open door” policy was introduced in late 1970s.<sup>102</sup> With the acceleration of urbanization and industrialization, China’s environmental and ecological problems have become increasingly critical.<sup>103</sup> The remarkable urbanization and industrialization has given rise to grave environmental consequences.<sup>104</sup>

First, the domestic environment has deteriorated rapidly. According to the Annual Report on the State of National Environment in China, acute pollution problems and ecological

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Fin., State Env'tl. Prot. Admin., and Nat'l Econ. & Trade Comm'n, Feb. 28, 2003, effective July 1, 2003) art. 3 (P.R.C.).

99. CUPC Regs, art. 18, para. 1.

100. *See id.*

101. *See the NDRC, supra note 96.*

102. Sungjoon Cho, *Defragmenting World Trade*, 27 NW. J. INT'L L. & BUS. 39, 88 (2006); *see also* ASIAN DEVELOPMENT BANK (ADB), COUNTRY ENVIRONMENTAL ANALYSIS FOR THE PEOPLE'S REPUBLIC OF CHINA (2007), available at <http://www.adb.org/Documents/Produced-Under-TA/39079/39079-PRC-DPTA.pdf> [hereinafter ADB REPORT].

103. *See ADB REPORT, supra note 102.*

104. *See id.*



destruction continued until 1996.<sup>105</sup> Improvements in the environment were made in some areas in 1997.<sup>106</sup> From 1999 onwards, environmental pollution problems have come under greater control by government.<sup>107</sup> Ecological destruction has still remained a great concern, however.<sup>108</sup> As far as the atmospheric environment is concerned, China is the world's largest pollutant emitter with SO<sub>2</sub> emissions around 20 million tons a year since 2003.<sup>109</sup> About sixty-seven percent of the urban population, or about 360 million people, is exposed to forms of air pollution that exceed the permissible standard according to the relevant data in 2004.<sup>110</sup> Acid rain pollutes more than one-third of China's territories.<sup>111</sup> Regarding water pollution, about seventy percent of China's seven major water systems are heavily polluted;<sup>112</sup> over 400 cities are short of water, and about 320 million out of the 800 million farmers in rural areas do not have access to safe drinking water, threatening the health of rural residents, the lives of animals and crop production.<sup>113</sup>

Land degradation and land scarcity are also severe problems. The main sources of land degradation include wind and water-induced soil erosion, desertification, salinization, and soil contamination.<sup>114</sup> Among them, desertification has rapidly accelerated.<sup>115</sup> Between the

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105. LI ZHIDONG, *ENERGY AND ENVIRONMENTAL PROBLEMS BEHIND CHINA'S HIGH ECONOMIC GROWTH: A COMPREHENSIVE STUDY OF MEDIUM AND LONG-TERM PROBLEMS, MEASURES AND INTERNATIONAL COOPERATION* (2003), <http://eneken.ieej.or.jp/en/data/pdf/188.pdf>.

106. *See id.*

107. *See id.*

108. *See id.*

109. LI ZHIDONG, *supra* note 105.

110. ADB REPORT, *supra* note 102, at 44.

111. From 1995 to 2010, coal consumption is expected to rise by up to 0.5 billion tons, resulting in a large increase in SO<sub>2</sub> emissions. SO<sub>2</sub> is the main source of acid rain and urban air pollution. The economic loss from SO<sub>2</sub> pollution includes damage to human health, decrease in crop yield and quality of produce, reduction in water quality and corrosion of materials and buildings. These pollutions have become an important factor limiting the social and economic development in some areas. Dong Cao et al., *SO<sub>2</sub> Charge and Tax Policies in China*, in *ENVIRONMENT TAXES: RECENT DEVELOPMENTS IN CHINA AND OECD COUNTRIES* 233, 254 (1999).

112. LI ZHIDONG, *supra* note 105, at 1.

113. *Id.* at 1; ADB REPORT, *supra* note 102, at 41.

114. ADB REPORT, *supra* note 102, at xvi.

115. *Id.*

late 1950s and 1975, the average annual rate of increase in desertification was about 1,560 km<sup>2</sup>, but by 1987 it had increased by thirty-five percent to 2,100 km<sup>2</sup> per annum and by 2000, it had increased by another seventy-one percent to 3,600 km<sup>2</sup> per annum.<sup>116</sup> Around twenty-seven percent of total land area of China or 2.6 million km<sup>2</sup> had already turned into deserts by the end of 2004.<sup>117</sup> This is estimated to have adversely affected the lives of almost 400 million people and resulted in a direct economic loss of RMB 54 billion per year.<sup>118</sup>

Second, cross-border pollution, in particular acid rain and sandstorms, have reached the Korean Peninsula and Japan.<sup>119</sup> According to the UNEP Global Environment Outlook (GEO) Year Book 2004/5, sandstorms originating in the dry regions of northern China and Mongolia have blown across the Korean Peninsula and Japan.<sup>120</sup> They have caused considerable hardship through disruption of communications, respiratory problems and related deaths, loss of livestock and crops over large areas, and associated loss of income.<sup>121</sup> Freshwater resources were also under cross-border threat. The UNEP warned that Lake Balkhash in Kazakhstan could dry up, producing another major environmental crisis in the region.<sup>122</sup> Apart from Kazakhstan's own heavy use of water, industrial pollution and high usage of the (Ili - LVP) river by China contributed greatly to the problem.<sup>123</sup>

In the context of certain global environmental problems, China has become the world's largest CO<sub>2</sub> producer over the course of the last three decades.<sup>124</sup> China has also changed from a major oil-exporter in 1980s to a major net importer since 1993 with an increase in rank

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116. *See id.* at 36-38.

117. *See id.* at 38.

118. *See id.*

119. LI ZHIDONG, *supra* note 105, at 1.

120. *See* U.N. ENV'T. PROGRAMME (UNEP), GEO YEAR BOOK 2004/5: AN OVERVIEW OF OUR CHANGING ENVIRONMENT 17 (2005), available at <http://www.unep.org/geo/yearbook/yb2004/> [hereinafter UNEP YEAR BOOK].

121. *See id.*

122. *See id.* at 19.

123. *See id.*

124. In 2006, China overtook the U.S. as the biggest emitter of CO<sub>2</sub>. *See China Overtakes U.S. in Greenhouse Gas Emissions*, N.Y. TIMES, June 20, 2007, available at [http://www.nytimes.com/2007/06/20/business/worldbusiness/20iht-emit.1.6227564.html?\\_r=1](http://www.nytimes.com/2007/06/20/business/worldbusiness/20iht-emit.1.6227564.html?_r=1).

from the seventh to the second among world oil importers in 2003.<sup>125</sup> The era of energy self-sufficiency and net export that lasted for nearly three decades is gone. Energy security has become a serious problem in the country (a problem hidden, to a degree, by its high economic growth) which potentially has huge implications for the international community.<sup>126</sup>

## 2. Air Pollution

The most notable environmental problem in China may be seriously falling air quality. Although urban air quality significantly improved during the 10th Five Year Plan (FYP) period (2001 to 2005),<sup>127</sup> the situation yet remains very serious. From the available data between 1999 and 2008,<sup>128</sup> emissions of air pollutants from

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125. See LI ZHIDONG, *supra* note 105; see also *Energy Outlook for China; Focus on Oil and Gas: Hearing on EIA's Annual Energy Outlook for 2005 Before the Comm. on Energy and Natural Resources U.S. Senate* (Feb. 3, 2005) (statement of Jeffrey Logan, Senior Energy Analyst and China Program Manager, International Energy Agency), available at [http://www.iea.org/speech/2005/jl\\_china.pdf](http://www.iea.org/speech/2005/jl_china.pdf); Press Release, Embassy of the P.R.C. in the U.S., *China to be the World's 2nd Largest Oil Importer*, Nov. 20, 2003, available at <http://www.china-embassy.org/eng/jjmy/b/t44331.htm>.

126. China's energy outlook in the next 20 years is dominated by coal and oil. According to the International Energy Agency, even with pro-energy efficiency and pro-renewable energy policies, coal will remain dominant in China's energy mix in 2030. See ADB REPORT, *supra* note 102, at 32.

127. See ADB REPORT, *supra* note 102, at xiii-xiv.

128. See MINISTRY OF ENVIRONMENTAL PROTECTION OF THE P.R.C., NATIONAL ENVIRONMENTAL STATISTICS BULLETIN: 1999 (2000); MINISTRY OF ENVIRONMENTAL PROTECTION OF THE P.R.C., NATIONAL ENVIRONMENTAL STATISTICS BULLETIN: 2000 (2001); MINISTRY OF ENVIRONMENTAL PROTECTION OF THE P.R.C., NATIONAL ENVIRONMENTAL STATISTICS BULLETIN: 2001 (2002); MINISTRY OF ENVIRONMENTAL PROTECTION OF THE P.R.C., NATIONAL ENVIRONMENTAL STATISTICS BULLETIN: 2002 (2003); MINISTRY OF ENVIRONMENTAL PROTECTION OF THE P.R.C., NATIONAL ENVIRONMENTAL STATISTICS BULLETIN: 2003 (2004); MINISTRY OF ENVIRONMENTAL PROTECTION OF THE P.R.C., NATIONAL ENVIRONMENTAL STATISTICS BULLETIN: 2004 (2005); MINISTRY OF ENVIRONMENTAL PROTECTION OF THE P.R.C., NATIONAL ENVIRONMENTAL STATISTICS BULLETIN: 2005 (2006); MINISTRY OF ENVIRONMENTAL PROTECTION OF THE P.R.C., NATIONAL ENVIRONMENTAL STATISTICS BULLETIN: 2006 (2007); MINISTRY OF ENVIRONMENTAL PROTECTION OF THE P.R.C., NATIONAL ENVIRONMENTAL STATISTICS BULLETIN: 2007 (2008); MINISTRY OF ENVIRONMENTAL PROTECTION OF THE P.R.C., NATIONAL ENVIRONMENTAL STATISTICS BULLETIN: 2008 (2009).

domestic sources stabilized, but emissions from industrial sources increased remarkably due to the rapid increase in industrial output and continued low efficiency of energy use in the industrial sector.<sup>129</sup> Seven of the ten most air-polluted cities in the world are in China. Of 500 monitored cities in the country, less than one percent meets the relevant World Health Organization's air quality standards.<sup>130</sup>

Moreover, in many large cities, vehicular emissions have overtaken industrial and domestic sources as the number one air pollution source for urban areas owing to the rapid increase in vehicular ownership.<sup>131</sup> The resulting nitrogen oxide pollution has become a serious urban air quality problem.<sup>132</sup> Rapid economic growth allows people to earn more money and thus to enhance their living standards. Rapidly rising incomes are concomitant with a fast developing culture of consumerism.<sup>133</sup> There were almost no private cars in China in the 1980s.<sup>134</sup> By the end of 2005, however, there were over 43 million.<sup>135</sup> The annual growth rate of car ownership by 2005 was 20.6 percent.<sup>136</sup> Based on this sort of a trend, it is expected that there will be 150 million cars in China by 2015.<sup>137</sup> In addition, urbanization has also experienced a rapid increase. By the end of 2005, the official urban-rural division ratio was forty-three to fifty-seven, but, as the government expects, with around a one percent urbanization rate per annum for the next 15 years, the ratio will be roughly fifty-five to forty-five by 2020.<sup>138</sup> It can be inferred that with increased urban populations, demand for private cars as well as public transportation will increase strikingly. Accordingly, consumption of oil for fuel will continue to grow. The already grave air pollution problems including CO<sub>2</sub> and The Suspended Particulate (TSP) are likely to become still worse without efficient control measures.<sup>139</sup>

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129. See sources cited *supra* note 128.

130. See ADB REPORT, *supra* note 102, at 44.

131. See *id.* at 43.

132. See *id.*

133. See *id.* at 6.

134. See *id.*

135. See *id.*

136. See *id.*

137. See *id.*

138. See *id.* at 7.

139. See *id.*

In China, transport fuels are not clean. Within a global context, the transport sector contributes up to twenty-five percent of worldwide greenhouse gas emissions.<sup>140</sup> Transport-related pollutants of greatest concern in a developing country like China are health-threatening emissions of fine particles and lead from the combustion of leaded gasoline, according to a World Bank report.<sup>141</sup> Transportation is very important in the national economy and will continue to remain so both domestically and internationally.<sup>142</sup> For the Chinese government, therefore, future emissions reduction strategies must take into account the need to persuade users, by means of incentives, compulsory taxes or penalties, to change their behavior with respect to transportation.

### III. APPLYING A FUEL TAX IN CHINA

#### A. *Current Taxes and Charges on Fuel Consumption and Vehicle Usage*

As mentioned above, there is a close relationship between air pollution and energy consumption as well as vehicle use.<sup>143</sup> Under China's current tax system, the consumption tax applies to petrol and diesel and vehicles in addition to VAT.<sup>144</sup> The major reason underpinning the double taxation is that transport fuel, like petrol and diesel, is a non-renewable resource and therefore it is necessary to constrain consumption to conserve energy resources and to protect the environment. The VAT has become the largest revenue source for the government since its imposition in 1994 and the consumption

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140. See, e.g., Ken Gwilliam et al., *Transport Fuel Taxes and Urban Air Quality*, in POLLUTION MANAGEMENT IN FOCUS (World Bank, Discussion Note 11, 2001), available at [http://rru.worldbank.org/Documents/PapersLinks/transport\\_fuel\\_taxes.pdf](http://rru.worldbank.org/Documents/PapersLinks/transport_fuel_taxes.pdf).

141. See *id.*

142. See, e.g., MINISTRY OF TRANSPORT OF THE P.R.C. (MOT), GUIDELINE OF MEDIUM- AND LONG-TERM SCIENTIFIC AND TECHNOLOGICAL DEVELOPMENT IN ROAD AND WATER TRANSPORTATION 2006-2020 (2005); see also Jean-Paul Rodrigue, *Transportation and Economic Development*, in THE GEOGRAPHY OF TRANSPORT SYSTEMS (2009).

143. See *supra* Part I.C.2.; see also ADB REPORT, *supra* note 102, at 31.

144. In China, consumption tax is imposed on certain specific consumer goods which are subject to VAT also. In this sense, consumption tax is supplementary to VAT.

tax also has seen a steady increase as a revenue source in recent years.<sup>145</sup> The VAT and consumption tax systems have been reformed in December 2008.<sup>146</sup> The new systems began to be effective from January 1, 2009.<sup>147</sup> The main purpose of the reforms was to make the systems more equal, transparent, and efficient than before.

### 1. Vehicles

Before the 2008 reform, vehicles were subject to VAT either at the standard rate of seventeen percent or at the rate of four percent, depending on whether the seller is a general VAT payer or a small-scale VAT payer engaging in commercial activities.<sup>148</sup> Apart from this, vehicles (motor cars) were liable to consumption tax according to the automobile engine displacement (capacity).<sup>149</sup> The applicable tax rates for cars with different capacity are provided in Table 1 below (before reform), which were adjusted once, with more detailed brackets, in 2006 (after adjustment).<sup>150</sup> The 2008 reform in VAT and

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145. See SAT, *supra* note 85.

146. Interim Regulations on Value Added Tax (promulgated by the St. Council, Dec. 13, 1993, amended Nov. 5, 2008, effective Jan. 1, 2009) Order No. 538 (P.R.C.) [hereinafter Amended VAT Regs]; Amended CT Regs.

147. Amended VAT Regs; Amended CT Regs.

148. See Amended VAT Regs art. 2 (1), (4) (providing for a standard rate of seventeen percent for general VAT payers in China). For small-scale taxpayers, from 1998 to 2008, the tax rate was divided into two types, the tax rate for small-scale taxpayers engaging in commercial activities was reduced to four percent, while for all other small-scale taxpayers the tax rate remained at six percent. See Ministry of Finance of the P.R.C. & State Administration of Taxation, Notice on the Tax Policy for Small-Scale Commercial VAT Taxpayers, No. 113 (1998).

149. Briefly, engine displacement is the volume swept by the all pistons of an engine in a single movement from top dead center to bottom dead center. See KnowledgeRush.com, [http://www.knowledgerush.com/kr/encyclopedia/Engine\\_displacement/](http://www.knowledgerush.com/kr/encyclopedia/Engine_displacement/) (last visited Mar. 2, 2010). It can be specified in cubic centimeters, liters, or cubic inches. *Id.* Power output of a combustion engine is directly proportional to the engine displacement. *Id.* Alternatively, displacement must sometimes be defined as the total volume of air/fuel mixture an engine draws in during one complete engine cycle, howsoever defined and subject to further interpretation by taxation authorities. *Id.*

150. See Ministry of Finance of the P.R.C. & State Administration of Taxation, Circular of Adjusting and Improving the Policy on Excise Duties (Cai Shui, No. 33, 2006) [hereinafter MOF & SAT Circular].

consumption tax have changed these tax rates to varying degrees.<sup>151</sup> While the standard VAT rate of seventeen percent remained unaltered, the rate for small-scale payers was reduced to three percent.<sup>152</sup> The consumption tax rates on vehicles with a much higher capacity have been increased dramatically.<sup>153</sup> Table 1 below (after reform) shows the changed tax rates.

**Table 1: Consumption Tax on Vehicles**<sup>154</sup>

Before Reform			After Adjustment			After Reform		
Taxable Item (Capacity)	Tax Rate		Taxable Item (Capacity)	Tax Rate		Taxable Item (Capacity)	Tax Rate	
<b>Motor Cars</b>	less than 1 liter	3%	<b>Motor Cars</b>	less than 1.5 liters	3%	<b>Motor Cars</b>	less than 1 liter	1%
	1 to less than 2.2 liters	5%		1.5 to 2 liters	5%		1 to 1.5 liters	3%
				2 to 2.5 liters	9%		1.5 to 2 liters	5%
				2.5 to 3 liters	12%		2 to 2.5 liters	9%
				3 to 4 liters	15%		2.5 to 3 liters	12%
<b>Cross- country Vehicles (four-wheel drive)</b>	less than 2.4 liters	3%		more than 4 liters	20%		More than 4 liters	40%
	2.4 liters or more	5%						
<b>Mini-buses and Vans</b>	less than 2 liters	3%	<b>Mini-buses and Vans</b>		5%	<b>Mini-buses and Vans</b>		5%
	2 liters or more	5%						

151. *China's Economy Sees Emerging V Shaped Recovery*, XINHUA NEWS AGENCY, Jul. 6, 2009, available at [http://news.xinhuanet.com/english/2009-07/06/content\\_11667094.htm](http://news.xinhuanet.com/english/2009-07/06/content_11667094.htm).

152. Amended VAT Regs, art. 12.

153. Amended CT Regs, Schedule of Items and Rates of Consumption Tax, item 9.

154. See MOF & SAT Circular; Amended CT Regs.

It is obvious that the reformed consumption tax rate schedule encourages the purchase and use of cars with a capacity of less than one liter, but discriminates against those cars with a capacity of three liters to four liters or more than four liters. The tax rate for the former has been decreased by two percent, while in sharp contrast, the rate for the latter has been increased by ten or twenty percent, respectively.<sup>155</sup> This change illustrates that the Chinese government intends to try and employ economic instruments, in particular taxation, to address emerging concerns related to environmental protection and energy conservation—but without creating too much impact on the economy. The new rate schedule is more environmentally-friendly than before, and it may exert a positive influence on improving air quality in the country.

It should be noted that there are two other taxes applying to vehicles. As discussed above, one is the vehicle (and vessel) tax, and the other is the vehicle acquisition tax.<sup>156</sup> The former is charged annually and the tax rate is based on the net-weight capacity or the

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155. The tax rate for cars with a capacity of less than one liter has been reduced from three percent to one percent. *China Revamps Passenger Car Taxes to Conserve Energy*, XINHUA NEWS AGENCY, Aug. 13, 2008, available at [http://news.xinhuanet.com/english/2008-08/13/content\\_9270707.htm](http://news.xinhuanet.com/english/2008-08/13/content_9270707.htm). The tax rate for cars with a capacity of three liters to four liters has been increased from fifteen percent to twenty-five percent, and for cars with a capacity of more than four liters has been increased from twenty to forty percent. *See id.*

156. *See* VVT Regs; Vehicle AT Regs. In China, no vehicle is allowed to be driven on a road unless it is registered and licensed. The vehicle acquisition tax (along with VAT and consumption tax) applies at the time of registration of a vehicle in a one-off manner. This is much like the first registration tax on the first registration of a motor vehicle in Hong Kong. The vehicle (and vessel) tax is then charged annually in China, which is like licensing of a vehicle annually in Hong Kong. Vehicle owners in China, like those in Hong Kong or elsewhere, are required to renew their vehicle license each year. This conveys the right for a vehicle to be driven on a road. Apart from the above taxes, a mandatory insurance applies to the first issue or renewal of a vehicle license according to the Law of Road Transport Security of the P.R.C. The insurance is similar in essence as the contribution to the Traffic Accident Victims Assistance Scheme applied to the first issue or renewal of a vehicle license in Hong Kong. *See generally* The Government of Hong Kong Special Administrative Division, Transport Department, [http://www.td.gov.hk/public\\_services/licences\\_and\\_permits/vehicle\\_and\\_driving\\_licences/how\\_to\\_apply\\_for\\_registering\\_and\\_licensing\\_a\\_vehic/index.htm](http://www.td.gov.hk/public_services/licences_and_permits/vehicle_and_driving_licences/how_to_apply_for_registering_and_licensing_a_vehic/index.htm) (last visited Oct. 1, 2009) (information on registration and licensing of a vehicle in Hong Kong).



number of the taxable vehicles.<sup>157</sup> It is clear that there is no direct relationship between vehicle tax and the actual intensity of vehicle use, such as the number of kilometers driven or the amount of petrol consumed. The vehicle (and vessels) tax only forms a small part of the cost of using vehicles, which means that the tax had little effect in terms of adjusting the behavior of vehicle owners. In reality it is other control measures, like limiting the issuance of new vehicle licenses and applying an “even and odd license number” system, that play a more significant role in mitigating traffic congestion and air pollution problems.

The vehicle acquisition tax seems to have had little impact on slowing down the rapid growth of car ownership. At the beginning of 2009, the government decided to reduce the tax on cars with a capacity of less than 1.6 liters to five percent during the period from January 20, 2009 to December 31, 2009,<sup>158</sup> in order to offset the adverse effects of the global financial crisis on the domestic economy. The government has been aware of the importance of relying on domestic consumption instead of exports to boost the economy.<sup>159</sup> This policy, though mainly for the economic purposes, applies conditionally to cars of less pollution capacity.<sup>160</sup> This tax preference reflects that, although the government encourages production and ownership of cars, it now equally emphasizes the “resource-efficient and environmentally-friendly” idea as put forward in the government’s 11th Five-Year National Economic and Social Development Plan (2006-2010).<sup>161</sup>

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157. VVT Regs, Schedule of Tax Items and Tax Amount of Vehicle and Vessel Tax.

158. This reduction is to be extended to the year of 2010, with a tax rate of 7.5 percent. *See* Ministry of Finance of the P.R.C. & State Administration of Taxation Notice No.154, 2009 (P.R.C.); *see also* Ministry of Finance of the P.R.C. & State Administration of Taxation: Low Emission Cars Next Year at the Reduced Rate of 7.5 Percent Levied, E-TO-CHINA.COM, *available at* [http://www.e-to-china.com/templates/default/skins/default/images/new\\_log1.gif](http://www.e-to-china.com/templates/default/skins/default/images/new_log1.gif) (last visited Mar. 2, 2010).

159. *See* Ministry of Finance of the P.R.C. & State Administration of Taxation, Doc. No. 12, 2009.

160. *Id.* As noted above, the reduction is only available to cars with a capacity of less than 1.6 liters. All other cars are subject to the ordinary tax rate of ten percent.

161. *See* NATIONAL DEVELOPMENT OUTLINE, *supra* note 15, ch. 1.

## 2. Petrol and Diesel

With the imposition of VAT and consumption tax in 1994, the tax burden on petrol and diesel increased substantially. The VAT rate for general VAT payers remained the same after the VAT reform in 2008.<sup>162</sup> The output tax payable is based on the sales value of petrol and diesel, on which the applicable rate is levied.<sup>163</sup> Under the VAT, crude oil including natural crude oil and artificial oil attracts the standard rate of seventeen percent.<sup>164</sup> The 2008 consumption tax reform has changed the tax rate structure slightly. Before the reform, petrol was taxed at RMB 0.2 per liter whether it was leaded or non-leaded.<sup>165</sup> After the reform, leaded petrol is taxed at RMB 0.28 per liter, but non-leaded petrol remains taxed at RMB 0.2 per liter.<sup>166</sup>

Although the consumption tax rate has not changed too much, new taxable items have been added to the category of taxable oil products. These items are: aviation kerosene, fuel oil, naphtha, solvents, and lubricant oil, of which the former two are taxed at RMB 0.1 per liter, and the latter three at RMB 0.2 per liter.<sup>167</sup>

Soon after the VAT and consumption tax reform, the government decided to increase the fuel consumption tax by seven-to-eight-fold starting from January 1, 2009 as part of a reform on fuel taxation and pricing approved by the State Council.<sup>168</sup> According to the Notice announced on December 18, 2008, the tax on petrol, naphtha, solvents and lubricants was raised to RMB 1 per liter from RMB 0.2 and the levy on diesel, aviation kerosene and fuel oil was raised to RMB 0.8 a liter from RMB 0.1.<sup>169</sup> The tax bracket for leaded petrol climbed to RMB 1.4 per liter from RMB 0.28, higher than the rate for

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162. Amended VAT Regs, art. 2 (1), (4). The standard tax rate for general VAT payers is seventeen percent. *Id.*

163. *Id.* art. 5.

164. *Id.* art. 2 (1).

165. Provisional Regulations on Consumption Tax (promulgated by the St. Council Dec. 13, 1993, effective Jan. 1, 1994), Schedule of Items and Rates of Consumption Tax, item 7 (P.R.C.).

166. Amended CT Regs, Schedule of Items and Rates of Consumption Tax, item 6 (1).

167. *Id.*; Schedule of Items and Rates of Consumption Tax, item 6 (3)-(7).

168. See State Council Notice of Implementing the Reform on Fuel Taxation and Pricing, No. 37, 2008 (P.R.C.) [hereinafter SC Notice].

169. SC Notice, § 2, art. 1 (3).

unleaded petrol.<sup>170</sup> Consumption tax on imported naphtha has been reinstalled, while taxation of aviation kerosene has been temporarily postponed.<sup>171</sup> (Table 2 below illustrates the changes in tax rates with the recent two reforms). The fuel consumption tax is collected at the production or import stage, and therefore refiners and importers of oil products are the taxpayers.<sup>172</sup> The tax revenues belong to the central government, but are to be distributed to local governments through formal procedures of government transfer.<sup>173</sup>

**Table 2: Consumption Tax on Fuel**<sup>174</sup>

Before Reform		After Consumption Tax Reform		After Fuel Taxation and Pricing Reform	
Taxable Item	Tax Rate (yuan/liter)	Taxable Item	Tax Rate (yuan/liter)	Taxable Item	Tax Rate (yuan/liter)
Petrol	0.2	Petrol Lead	0.28	Petrol Lead	1.4
		Non-lead	0.2	Non-lead	1
		Aviation Kerosene	0.1	Aviation Kerosene	0.8
		Naphtha	0.2	Naphtha	1
		Solvents	0.2	Solvents	1
		Lubricants	0.2	Lubricants	1
		Fuel Oil	0.1	Fuel Oil	0.8
Diesel	0.1	Diesel	0.1	Diesel	0.8

170. Ministry of Finance of the P.R.C. & State Administration of Taxation Notice of Increasing the Consumption Tax Rates on Fuel Products, No. 167, 2008, art. 1. (P.R.C.) [hereinafter MS Notice].

171. SC Notice, § 2, art. 1 (5).

172. *Id.* § 2, art. 1 (4).

173. *Id.* § 2, art. 1 (4), (6).

174. *See* Provisional Regulations on Consumption Tax (promulgated by the St. Council Dec. 13, 1993, effective Jan. 1, 1994), Schedule of Items and Rates of Consumption Tax, item 7 (P.R.C.); Amended CT Regs, Schedule of Items and Rates of Consumption Tax, item 6; SC Notice; MS Notice.

The fuel consumption tax increase was introduced against the background that crude oil in the global market plunged seventy-five percent in value from the record prices of July, 2008 (more than \$147 per barrel), which eased the import costs and provided China with room to implement energy-tax reforms first proposed about ten years ago.<sup>175</sup> As the world's second-biggest oil user,<sup>176</sup> the reform in fuel taxation and pricing has the potential to have a significant influence on the country's economy and environment. As shown in the Notice, the government aims to spur energy-saving, cut pollution in cities and reduce oil imports.<sup>177</sup> The adjustment of consumption taxes on oil products is also aimed at playing a role in promoting economic restructuring, standardizing imposition of administrative charges, and ensuring equal sharing of tax burdens among users.<sup>178</sup>

Concomitant with the increase of the tax rate on oil products, reform in the road charge system was argued to be needed. According to the Notice, six types of government charges were waived: road maintenance fee, channel maintenance fee, administration fee of highway transportation, highway transportation surcharges, administration fee of water transportation, and water transportation surcharges.<sup>179</sup> In addition, the governmental debt-repaying secondary road fees were to be abolished gradually.<sup>180</sup> The central government subsidizes (with the increased income from fuel consumption tax) the losses of local governments due to the abolition of certain road tolls.<sup>181</sup> It is argued that this will help streamline the

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175. See Ed Crooks, *Oil Groups Face Up to Lower Prices*, FIN. TIMES, July 27, 2009, available at [http://www.ft.com/cms/s/0/e26f51e4-7a45-11de-b86f-00144feabdc0.html?nclick\\_check=1](http://www.ft.com/cms/s/0/e26f51e4-7a45-11de-b86f-00144feabdc0.html?nclick_check=1).

176. See U.S. Energy Information Administration, *China Energy Profile*, [http://www.eia.doe.gov/country/country\\_energy\\_data.cfm?fips=CH](http://www.eia.doe.gov/country/country_energy_data.cfm?fips=CH) (last visited Sept. 3, 2010).

177. SC Notice, § 1.

178. *Id.*

179. *Id.* § 2, art. 1 (1).

180. *Id.* § 2, art. 1 (2). The road charges were collected by local governments who received loans from banks to build highways and relied on toll revenues to pay back their debts. See Tianbao Qin, *Energy Tax: How Far is it from Idea to Practice? Lessons Learned from the Experience in China*, in 6 CRITICAL ISSUES IN ENVIRONMENTAL TAXATION 867 (Jacqueline Cottrell et al. eds., 2009). There were a great number of toll stations and a large number of people that were employed for the collection of the charges. *Id.*

181. SC Notice, § 2, art. 1 (6).

transport and taxation departments of government, making clear the delineation of their responsibilities as well.<sup>182</sup>

To offset the effect of tax increases, government subsidies are provided for grain-producing peasants, urban public transportation, country road passenger transportation, forestry, and fishery industries as well as taxis following the changes of oil prices.<sup>183</sup>

In addition to the lift in tax rates, the fuel pricing mechanism was changed. The pricing of domestic refined oil has begun to be linked with global prices under the control of government.<sup>184</sup> This approach can help reflect fluctuations of international oil prices and production costs, and help balance domestic oil supply and demand. It is hoped that the newly reformed “more consumption (of fuel), more payment” mechanism could enhance the role of taxation in fostering energy efficiency and pollution abatement.

### *B. Environmental Impact of the Current Tax System*

Before the fuel consumption tax and pricing reform, many experts believe that the current limited use of economic instruments in China including taxes and charges was not sufficient to encourage polluters to mitigate their pollution because it made more economic sense to pay charges and fines than to control pollution. It was argued that China needed to develop economic instruments to prompt polluters to adopt pollution control practices and technologies.<sup>185</sup>

Despite the fact that several taxes have applied to the production and ownership of vehicles since 1994, the number of motor vehicles privately owned has increased very quickly. Taxation (at least at the rate applying) has had little effect on restraining car ownership. One of major reasons was that the government’s policy encourages vehicle production and use. Since the ninth FYP (1996-2000), the

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182. See Qin, *supra* note 180. Before the reform, the MOT was in charge of all types of charges related to construction, maintenance, and management of highways. The imposition of a tax on oil products and vehicles by the SAT might overlap or even conflict with the collection of charges by the MOT. The fuel consumption tax reform, combined with abolition of highway-related charges, is helpful to redefine the relationship between the two departments.

183. SC Notice, § 2, art. 3.

184. *Id.* § 2, art. 2.

185. See ADB REPORT, *supra* note 102, at 120.

automobile industry has been listed as a pillar industry.<sup>186</sup> However, from an environmental point of view, limitation of vehicle usage can have a direct impact on alleviating air pollution problems. As mentioned before, the number one emitter of air pollutants in many large cities in China has become motor vehicles. In 2006, “China overtook the US as the biggest emitter of [CO<sub>2</sub>], the [chief] greenhouse gas blamed for the bulk of global warming.”<sup>187</sup> Although fuel taxation is not efficient in reducing externalities from emission, fuel consumption does have a direct linkage with emissions of CO<sub>2</sub>. In the case of CO<sub>2</sub>, “the correlation between emissions and gasoline quantity [consumed] is very strong, regardless of the age or type of motor vehicle.”<sup>188</sup>

Energy efficiency and safety are further serious problems. Efficiency in energy use has seen a significant deterioration over the last 20 years.<sup>189</sup> The combined tax burden of current VAT and consumption taxes on transport fuel in China is only around twenty-three percent, lower than comparable rates applying in many other countries.<sup>190</sup> This low level of taxation has to some extent led to low energy prices in China for a relatively long time, which has contributed significantly to the waste of energy and inefficient utilization.<sup>191</sup> The lack of efficiency has more than environmental consequences; it is also of strategic significance. With regard to

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186. See Chen Huai, *Implementing “Three Representatives” and Protecting Consumers’ Rights and Interests*, in DEVELOPMENT RESEARCH CENTER OF THE STATE COUNCIL, Dec. 6, 2002, available at [http://www.drcnet.com.cn/DRCnet.Channel.Web/expert/showdoc.asp?doc\\_id=146310](http://www.drcnet.com.cn/DRCnet.Channel.Web/expert/showdoc.asp?doc_id=146310).

187. *China Overtakes U.S. in Greenhouse Gas Emissions*, *supra* note 124.

188. Shi-Ling Hsu, *Psychological Barriers to Gasoline Taxation*, in 6 CRITICAL ISSUES IN ENVIRONMENTAL TAXATION 337-38 (Jacqueline Cottrell et al. eds., 2009).

189. See ADB REPORT, *supra* note 102, at 8-9, 27-28, 31-33.

190. For instance in 2007, the tax rate in Norway is sixty-three percent of its fuel price. Nina Berglund, *Irritation Grows Over Taxes*, AFTENPOSTEN.NO, <http://www.aftenposten.no/english/local/article1891543.ece>. However, the tax rate in the U.S. the federal tax rate is about 18.4 cpg; AMERICAN PETROLEUM INSTITUTE, GASOLINE TAXES (2010), available at [http://www.api.org/statistics/fueltaxes/upload/January\\_2010\\_gasoline\\_and\\_diesel\\_summary\\_pages.pdf](http://www.api.org/statistics/fueltaxes/upload/January_2010_gasoline_and_diesel_summary_pages.pdf).

191. See, e.g., Bai Yanfeng, *Understanding the Puzzle of Transforming Road Charges to Fuel Tax in China*, 4 ECON. & MGMT. 77-82 (2009).

petroleum, some reports “estimated the remaining exploitable reserves in [China] are only 2.4 billion tons of coal equivalent (tce) which, at current rates of extraction, will only last about 14 years.”<sup>192</sup> Dependence on external sources for petroleum increased from forty-five percent in 2006 to around fifty-two percent in 2009.<sup>193</sup> The report from the International Energy Agency estimates that “a continuation of ‘business as usual’ in [China] will increase import dependency to 75 [percent] by 2020.”<sup>194</sup>

The recent reforms in fuel taxation and pricing have certainly helped promote environmental protection compared to the previous regime.<sup>195</sup> They have helped standardize the fiscal system by gradually reducing the road charge system and enhancing the role of taxation as well as formalizing inter-governmental transfers.<sup>196</sup> Nevertheless, the reformed system does not constitute an independent fuel taxation system. Unlike other taxes, a fuel tax has its own special characteristics, and connects closely with energy consumption and environmental quality.<sup>197</sup> Many countries have imposed fuel taxes, such as the U.K. and Japan, mainly for the purpose of energy conservation and efficiency, and pollution reduction (as well as revenue raising).<sup>198</sup> It is worth thinking if it is feasible to introduce, formally, a consolidated fuel tax system to China so as to help achieve the aim of sustainable development.

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192. ADB REPORT, *supra* note 102, at 9.

193. Wang Qian, *Oil Imports Hit Alarming Level in China*, CHINA DAILY, Jan. 14, 2010, <http://www.drcnet.com.cn/DRCnet.common.web/DocViewEnglish.aspx?chnid=267&docid=2121671&leafid=929>.

194. ADB REPORT, *supra* note 102, at 9.

195. See Lin Jianyang, *China to Kick-Start Fuel Tax Reform on Jan 1*, XINHUA NEWS AGENCY, Dec. 5, 2008, available at [http://news.xinhuanet.com/english/2008-12/05/content\\_10462216.htm](http://news.xinhuanet.com/english/2008-12/05/content_10462216.htm); see also Wang Changyong & Zhang Na, *Tolls Out, Taxes Up for Fuel Price Reform*, CAIJING MAG., Dec. 16, 2008, available at <http://english.caijing.com.cn/2008-12-16/110039660.html>.

196. Changyong & Zhang Na, *supra* note 195.

197. See, e.g., Gwilliam et al., *supra* note 140.

198. See, e.g., AUSTRALIA FUEL TAXATION INQUIRY, FUEL TAXATION: INTERNATIONAL EXPERIENCE (2002), available at <http://fueltaxinquiry.treasury.gov.au/content/backgnd/download/003.pdf>; see also FRIENDS OF THE EARTH IN LONDON, FUEL TAX AND CLIMATE CHANGE: WHY THE GOVERNMENT SHOULD STAND FIRM (2008), available at [http://www.foe.co.uk/resource/media\\_briefing/fuel\\_tax\\_briefing.pdf](http://www.foe.co.uk/resource/media_briefing/fuel_tax_briefing.pdf).

*C. A Consolidated Fuel Tax?*

According to some official statements from China, creation of a fuel tax may not be necessary because of the recent reforms in the fuel consumption tax and pricing. It is argued that the reforms have “hit the targets” that a fuel tax would need to hit, such as eliminating arbitrary road charges, addressing the problem of overloading of freight, easing the financial pressure caused by the abolition of the highway charges, and improving energy efficiency and air quality.<sup>199</sup>

In a sense, this argument holds water. The old consumption tax failed to play a role in restricting unreasonable consumption of petrol and to help reduce air pollution because the tax rates (and prices) of fuel have remained very low since the implementation of the fuel consumption tax in 1994. During the 10th FYP period, “the swelling demand for oil, driven in large part by the speedy growth of automobile ownership, [was accompanied by a] compounding urban air pollution problem[, which] boost[ed] carbon dioxide emissions.”<sup>200</sup> Increasing the fuel consumption tax rates and linking the domestic oil price to the international market price have had effects on domestic oil supply and demand.

Nonetheless, a specific, focused fuel tax is still needed, which may be a forerunner for the introduction of a whole set of environmental taxes in China in the future. From a constitutional perspective, the recent reforms in fuel taxation and pricing do not meet the principle of “no taxation without law”.<sup>201</sup> The reform scheme was drafted and released jointly by the National Development and Reform Commission (NDRC), the Ministry of Finance (MOF), and the SAT

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199. See *Reform in Fuel Taxation and Charge Systems*, PEOPLE’S DAILY, Jan. 8, 2009, available at <http://202.108.90.173:1980/SunIT/202.108.90.130/n8136506/n8136593/n8137681/n8671062/n8671152/8766224.html#>; see also *An Introduction to the Reform in Provisions and Implementation Methods on Consumption Tax and the Reform in Fuel Taxation and Charge Systems*, Chaohu Municipal Office of the SAT, available at <http://www.ch365.com.cn/ad/guoshui2009/index-1.html> (last visited Aug. 3, 2009).

200. ADB REPORT, *supra* note 102, at 31.

201. See The Law of Legislation (promulgated by the Nat’l People’s Cong., Mar. 15, 2000, effective July 1, 2000) art. 8 (8), translated in ISINOLAW (last visited Mar. 7, 2010) (P.R.C.) (noting that this principle means that only by law can tax be imposed or changed, with the term “law” strictly defined as those passed by the legislative body of a country).



at the end of 2008, and the final result was announced and issued by the State Council.<sup>202</sup> The reform increased the tax rate and changed imposition methods, which had a direct impact on the tax burden of taxpayers. In a modern constitutional polity, such a change should be imposed through a legislative procedure since only by law should taxpayers' rights and interests be altered.<sup>203</sup>

From an environmental viewpoint, the reform plays no more than a very limited role in enhancing public awareness of the need to save energy and reduce pollution. Consumers would not feel pressed to restrict their consumption due to the fact that the reform only slightly changed the final fuel prices. Currently the tax applies a fixed rate on the basis of quantity, i.e. sales volume of oil.<sup>204</sup> Although this method follows international practice, the effect of taxation is meager since the reformed tax rate is still too low compared with the rates applying in many other countries.<sup>205</sup> The tax in China is an indirect subsidy to all transport fuel consumption. When the production price and cost are increased across the world, if China's consumers still enjoy comparatively lower fuel prices, it would amount to the waste of scarce resources. When the (international) price decreases, huge profits would go to the monopolist fuel producers, which again does not help control producers' pollution.<sup>206</sup> Collection of fuel consumption tax currently at the production stage may be ineffective in inducing producers to control pollution and wastage of energy, even if the full amount of tax is collected. It is strongly argued that levying the tax at the consumption stage would be more effective both to adjust the price to world prices and to control pollution.

From an economic perspective, the existence of negative externalities, like pollution and waste of energy, and the failure of the

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202. See SC Notice.

203. This means that law is the basic source for taxation. No other government regulations and rules are allowed to create new taxes, alter tax rates, or change the imposition method since taxes have a direct or indirect relationship with taxpayers' private property and other related civil and political rights.

204. Amended CT Regs, Schedule of Items and Rates of Consumption Tax, item 6.

205. See, e.g., Bai Yanfeng, *supra* note 191.

206. In China, there are three big state-owned oil companies, they are China National Petroleum Corporation (CNPC), China Petroleum & Chemical Corporation (SINOPEC), and China National Offshore Oil Company (CNOOC). STEVEN W. LEWIS, CHINESE NOCS AND WORLD ENERGY MARKETS: CNPC, SINOPEC AND CNOOC 1 (2007).

market to adequately deal with them have serious implications for the achievement of true allocative efficiency within the economy. This is precisely so in today's China. Vehicular emissions and road congestion, along with other related environmental problems, will impede sustainable development in the Chinese economy. China's government has resolved to shift the balance of growth from exports towards domestic spending.<sup>207</sup>

[It] has . . . taken bolder action . . . to boost consumption . . . [with] a host of incentives to encourage households to open their wallets. Rural residents get subsidies for buying vehicles and other goods [like] refrigerators [and] computers . . . [while] urban residents get a subsidy if they trade in cars and home appliances for new goods; tax rates on low-emission cars have been cut. The government also has [taken] several measures . . . to improve the social safety net, . . . [which should], in the long[-run], encourage [people] to save less and spend more.<sup>208</sup>

All these signal a very likely increase in fuel consumption in the near-medium future. It is necessary to use taxation in a more advanced way, to combat negative externalities. Ideally, we need taxes which impose tax upon each unit of pollution in an amount equal to the marginal damage it inflicts upon society at the efficient level of output.

In fact, China has pushed for fuel tax reform for many years. The idea of a fuel tax was raised as early as 1994.<sup>209</sup> The key goal set up by the 11th FYP—creation of a “circular economy”—is to achieve certain environmental objectives, particularly a twenty percent

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207. See WEN JIABAO, GOVERNMENT REPORT 2008 FOR THE 11TH NATIONAL PEOPLE'S CONGRESS (2008), available at [http://news.xinhuanet.com/english/2008-03/19/content\\_7818043.htm](http://news.xinhuanet.com/english/2008-03/19/content_7818043.htm).

208. *Shopaholics Wanted*, ECONOMIST, June 25, 2009, available at [http://www.economist.com/business-finance/PrinterFriendly.cfm?story\\_id=13900125](http://www.economist.com/business-finance/PrinterFriendly.cfm?story_id=13900125).

209. See *15 Years for Fuel Tax and Pricing Reform in China*, CHINA'S TAXATION NEWSPAPER, Dec. 9, 2008, available at <http://202.108.90.173:1980/SunIT/202.108.90.130/n8136506/n8136593/n8137681/n8671062/n8697374/8697767.html>.

reduction in energy intensity and a ten percent reduction in pollutants by 2010.<sup>210</sup> The use of economic instruments proposed for the 11th FYP period includes environmental taxes, environmental funds, and ecological compensation funds.<sup>211</sup> The Ministry of Environmental Protection of the People's Republic China (MEP) is working with the SAT "to design environmental levies on polluting products[;] . . . the collection of environmental taxes[, according to a recent survey,] is supported by [a rather remarkable] 99 [percent] of the general public."<sup>212</sup> It appears that introduction of a formal fuel tax (and gradually a whole-set of environmental taxes) to China is politically, psychologically, and financially feasible.

#### IV. HOW TO IMPOSE A FUEL TAX IN CHINA?

##### *A. Examples from Abroad*

Modern fuel taxes of one sort or another have been introduced in many countries. "Tax rates on automotive fuels vary markedly from country to country, ranging from heavy subsidies for all fuels in Nigeria and Iran to high taxes in Europe."<sup>213</sup> Imposition of a (sensible) fuel tax usually aims to meet multiple objectives including raising government revenues for general expenditure purposes, efficiently allocating resources to and within the transport sector, financing road provision and maintenance, reducing road congestion, reducing the environmental externalities of road transport, and redistributing income. Since it is difficult to achieve all these objectives simultaneously through fuel tax policies alone, most countries use other policy instruments as supplements of fuel taxation, particularly to correct for externalities.<sup>214</sup> The difficulty of meeting the various aims is especially demanding in low-income countries where fewer policy instruments are available (often due to demands to address dire unmet basic needs).

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210. See NATIONAL DEVELOPMENT OUTLINE, *supra* note 15, chs. 1 & 6; see also ADB REPORT, *supra* note 102, at xix-xx.

211. ADB REPORT, *supra* note 102, at 86.

212. *Id.* This is shown by the results of a survey of 4.12 million respondents conducted by China Environmental Protection Alliance. *Id.*

213. Gwilliam et al., *supra* note 140.

214. See *id.*

The U.K. was the first country to introduce a fuel tax.<sup>215</sup> Today it imposes the highest fuel tax in Europe—and probably the world.<sup>216</sup> The “Motor Spirit Duty” was applied in the U.K. in 1909, at the rate of £0.013 per U.K. gallon,<sup>217</sup> and later on the Hydrocarbon Oil Duties Act 1979 was enacted to govern the imposition of fuel taxation. This is an excise duty levied on oils (mainly road vehicle fuels), which is added to the price of motor fuel per unit of volume.<sup>218</sup> Since the introduction of the Fuel Price Escalator (FPE) by the Conservative government in 1993, a significant rise in the cost of fuel persisted until the cancellation of the FPE in 1999.<sup>219</sup> In May 2008, the U.K. fuel tax rate was the highest in Europe with a rate of £0.5035 per liter for diesel and unleaded petrol,<sup>220</sup> and is subject to annual increase.<sup>221</sup>

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215. *Petrol as Motor Spirit*, TIMES, May 7, 1909; see also Ye Jian, *Fuel Taxation in Typical Countries*, July 28, 2009, available at <http://old.chinahighway.com/news/2009/350709.php>.

216. Robert Winett, *UK Drivers Pay Highest Fuel Taxes in Europe*, DAILY TELEGRAPH, May 10, 2008, available at <http://www.telegraph.co.uk/news/newsttopics/fairdealfordrivers/1942640/UK-drivers-pay-highest-fuel-taxes-in-Europe.html>.

217. Ye Jian, *supra* note 215.

218. Hydrocarbon Oil Duties Act, 1979, ch. 5, § 1, 6.

219. See Fuel Tax, Petrol Prices, <http://www.petrolprices.com/fuel-tax.html> (last visited Mar. 8, 2010). The FPE was an automatic increase in hydrocarbon oil duty ahead of inflation in the UK from 1993 to 1999. It forced the UK fuel prices up from one of the lowest in Europe to one of the most expensive. When it was first added, it was set at an annual increase of three percent above inflation, and therefore fuel prices rose by three pence a liter and tax contributed to 72.8 percent of the total cost. In 1997, the increase rate was raised by the Labour government to six percent per year, which added 11.1 pence to the cost of unleaded petrol and was at seventy-five percent of the total cost. The FPE was a way of the UK government making money and also to help protect the environment by discouraging people from using their cars. Despite it being abandoned in 1999, fuel prices did continue to rise rapidly. The increase in fuel duty for 2009 was above inflation and the tax is planned to increase further “on 1 April from 2010 to 2013 by 1 ppl above indexation in each year,” according to the 2009 Budget of the government. HM Revenue & Customs, *Hydrocarbon Oils: Duty Rates*, Budget 2009, BN 66, available at <http://www.hmrc.gov.uk/budget2009/bn66.pdf> [hereinafter UK Hydrocarbon Oil Rates].

220. See Winett, *supra* note 216; see also HM Revenue & Customs, *Hydrocarbon Oils: Historic Duty Rates*, available at [http://customs.hmrc.gov.uk/channelsPortalWebApp/channelsPortalWebApp.portal?\\_nfpb=true&\\_pageLabel=pageExcise\\_RatesCodesTools&id=HMCE\\_PROD1\\_023552&propertyType=document](http://customs.hmrc.gov.uk/channelsPortalWebApp/channelsPortalWebApp.portal?_nfpb=true&_pageLabel=pageExcise_RatesCodesTools&id=HMCE_PROD1_023552&propertyType=document) [hereinafter UK Hydrocarbon Oil Historic Rates].

It is worth noting that the government introduced a duty differential to petrol in 1996 and to diesel in 1997 based on the sulphur and aromatics content of the fuel.<sup>222</sup> The lower the content, the lower are the taxes.<sup>223</sup> From April 2008, the fuel duty rate structure was simplified to a single rate for diesel and double rates for petrol (leaded and unleaded).<sup>224</sup> The tax rate for unleaded petrol and diesel on and after September 1, 2009 was £0.5619 per liter, and for leaded petrol and other light oils £0.6591.<sup>225</sup> In addition to the duty, VAT is applied as a percentage of the combined total (fifteen percent from December 1, 2008 to December 31, 2009).<sup>226</sup> It is estimated that the share of fuel prices accounted for by fuel duty was sixty-seven percent for petrol and sixty-six percent for diesel in 2007.<sup>227</sup> There is a fuel duty rebate available for local bus transport operators.<sup>228</sup> Aviation fuel is exempt from fuel duty and VAT because of the Convention on International Civil Aviation.<sup>229</sup> The revenue generated from fuel duty is used for general purposes including but not confined to environmental protection.<sup>230</sup> The U.K. government is committed to meeting its required thirty-four percent cut in emissions by 2020 through domestic action (such as taxation).<sup>231</sup>

The situation with fuel tax in the U.S. serves as a sharp contrast with that in the U.K. A report released by the Organization of Petroleum Exporting Countries (OPEC) shows that within the G7

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221. *See id.*; *see also* UK Hydrocarbon Oil Rates, *supra* note 219.

222. *See* UK Hydrocarbon Oil Historic Rates, *supra* note 220.

223. *See id.*

224. *See id.*

225. UK Hydrocarbon Oil Rates, *supra* note 219.

226. *See* FUEL TAXATION: INTERNATIONAL EXPERIENCE, *supra* note 198.

227. *See* FRIENDS OF THE EARTH IN LONDON, *supra* note 198.

228. *See* Hydrocarbon Oil Duties Act 1979, ch. 5 § 11-12; *see also* FUEL TAXATION: INTERNATIONAL EXPERIENCE, *supra* note 189.

229. Int'l Civil Aviation Org., Convention on International Civil Aviation art. 24, 2006, available at [http://www.icao.int/icaoet/dcs/7300\\_cons.pdf](http://www.icao.int/icaoet/dcs/7300_cons.pdf). The Convention is also known as the Chicago Convention, which established the International Civil Aviation Organization. It came into effect in 1944 and exempts air fuel from tax for international air travel. *Id.*

230. *See* HM Revenue & Customs, About Us, <http://www.hmrc.gov.uk/menus/aboutmenu.htm> (last visited Mar. 10, 2010).

231. COMMITTEE ON CLIMATE CHANGE, BUILDING A LOW-CARBON ECONOMY-THE UK'S CONTRIBUTION TO TACKLING CLIMATE CHANGE, at xix (2008), available at <http://www.theccc.org.uk/pdf/TSO-ClimateChange.pdf>.

countries the U.K. enforces the highest tax on consumption of oil products at a rate almost five times higher than that levied in the U.S.<sup>232</sup> The high tax rates in the U.K. have pushed fuel prices to double those in the U.S.<sup>233</sup> In the U.S., gasoline and diesel fuel are taxed by federal and state governments.<sup>234</sup> State taxes have been applied for a long time.<sup>235</sup> Oregon introduced the first U.S. state tax on fuel at one cent per U.S. gallon in 1919.<sup>236</sup> All other states applied such a tax in the following decades.<sup>237</sup> The federal gasoline tax at one cent per U.S. gallon was applied in 1932 through the enactment of the Revenue Act of 1932.<sup>238</sup> As of October 2009, the nationwide average tax on gasoline was 47.4 cents per U.S. gallon and on diesel fifty-two cents per U.S. gallon.<sup>239</sup> The federal tax on gasoline was 18.4 cents and on diesel 24.4 cents per U.S. gallon.<sup>240</sup> At the state level, the tax rates vary, on average, the state gasoline excise tax was 18.5 cents per U.S. gallon, while the state diesel excise tax was nineteen cents.<sup>241</sup> Other state and local taxes on gasoline and diesel, including applicable sales taxes, gross receipts taxes, oil inspection fees, county and local taxes, underground storage tank fees and other miscellaneous environmental fees, averaged 10.5 cents and

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232. See ORGANIZATION OF PETROLEUM EXPORTING COUNTRIES (OPEC), ANNUAL STATISTICAL BULLETIN 2008, at 130 (2009), available at <http://www.opec.org/library/Annual%20Statistical%20Bulletin/pdf/ASB2008.pdf>. G7 countries are France, Germany, Italy, Japan, United Kingdom, United States, and Canada. OPEC, WHO GETS WHAT FROM IMPORTED OIL? (2009), available at <http://www.opec.org/library/Special%20Publications/pdf/WGW2009.pdf>.

233. See generally OPEC, WHO GETS WHAT FROM IMPORTED OIL?, *supra* note 232.

234. See LOUIS ALAN TALLEY, THE FEDERAL EXCISE TAX ON GASOLINE AND THE HIGHWAY TRUST FUND: A SHORT HISTORY, CRS REPORT FOR CONGRESS, Order No. RL30304 (2000), available at <http://ncseonline.org/nle/crsreports/transportation/trans-24.cfm#Back1>.

235. See *id.*

236. See *id.*

237. See *id.*

238. Revenue Act of 1932, Pub. L. No. 154, § 617a, 47 Stat. 169 (1932).

239. AMERICAN PETROLEUM INSTITUTE, MOTOR FUEL TAXES SUMMARY REPORT (2010), available at [http://www.api.org/statistics/fueltaxes/upload/January\\_2010\\_gasoline\\_and\\_diesel\\_summary\\_pages.pdf](http://www.api.org/statistics/fueltaxes/upload/January_2010_gasoline_and_diesel_summary_pages.pdf).

240. *Id.*

241. *Id.*

8.8 cents per U.S. gallon, respectively.<sup>242</sup> Revenues from federal and state fuel taxation are primarily used for highway and bridge construction, though other tax revenues are also used in transportation related programs.<sup>243</sup> The fuel taxes are deemed as user taxes in America.<sup>244</sup> Because money is required for road construction and maintenance, the idea is that drivers who use state highways should pay for them through taxes. Certain groups are exempted from paying tax on fuel consumption, such as volunteer fire companies and governmental units.<sup>245</sup> Fuel taxes are often refunded to farmers for gasoline used in their farming operations.<sup>246</sup>

The tax burden of fuel consumption in the U.S. is indeed quite low looked at in a global context. According to U.S. official statistics released in November 2009, taxes on gasoline accounted for fifteen percent of the fuel price, and taxes on diesel seventeen percent.<sup>247</sup> This is one very likely reason for the decline in air quality in the U.S. over the post-WWII period, especially: almost three-quarters of the population live in air pollution non-attainment areas.<sup>248</sup> Although China overtook the U.S. as the biggest CO<sub>2</sub> emission producer, the

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242. *Id.*

243. See Jim March, U.S. Dep't of Transportation, *The Future of Highway Financing*, in 3 INNOVATIVE FINANCING SERIES, available at <http://www.tfrc.gov/pubrds/05nov/02.htm>. The Highway Revenue Act of 1956 of the US established the Highway Trust Fund, which was primarily to ensure a dependable source of financing various highway programs. See FEDERAL HIGHWAY ADMINISTRATION OFFICE OF POLICY DEVELOPMENT, HIGHWAY TRUST FUND PRIMER, available at <http://www.fhwa.dot.gov/policy/primer98.pdf>.

244. See U.S. Dep't of the Treasury, Fact Sheets: Taxes, <http://www.treasury.gov/education/fact-sheets/taxes/state-local.shtml> (last visited Sept. 3, 2010).

245. *Id.*

246. See *id.*

247. See U.S. Energy Information Administration, Gasoline Components History, <http://tonto.eia.doe.gov/oog/info/gdu/gaspump.html> (last visited Mar. 7, 2010); see also U.S. Energy Information Administration, Diesel Fuel Components History, <http://tonto.eia.doe.gov/oog/info/gdu/dieselpump.html> (last visited Mar. 7, 2010).

248. See U.S. Environmental Protection Agency, Nonattainment Areas Map: Criteria Pollutants, <http://www.epa.gov/air/data/nonat.html?us~USA~United%20States%22%3Ehttp://> (last visited Mar. 7, 2010).

U.S. emits more, per head, than any other country.<sup>249</sup> Many economists and policy analysts argue that Americans drive too much in motor vehicles that consume too much gasoline, and that a gasoline tax is called for to reduce both of these amounts. Advocates like Gregory Mankiw and Paul Krugman<sup>250</sup> have been arguing for an increased gasoline tax. It is demonstrably true that taxing undesirable behavior is generally more effective than subsidizing desirable behavior.

Though not as severe as the tax regime which applies in the U.K., Hong Kong has a significant fuel taxation system. According to the Environment Bureau of the Hong Kong government (ENB), the retail prices of vehicular fuel in Hong Kong are determined by oil companies, having regard to international oil prices, commercial practices and their operating costs.<sup>251</sup> At the retail station, the price of fuel comprises the product cost, government excise duties and taxes, land cost,<sup>252</sup> operating costs including distribution, marketing,

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249. See *Climate Change: The Big Emitters*, BBC NEWS ONLINE, July 4, 2005, <http://news.bbc.co.uk/2/hi/science/nature/3143798.stm>.

250. See *The Pigou Club Manifesto*, <http://gregmankiw.blogspot.com> (Oct. 20, 2006); see also Paul Krugman, *Earth in the Balance Sheet Economists Go for the Green*, THE DISMAL SCIENTIST, Apr. 17, 1997, <http://web.mit.edu/krugman/www/green.html> (Both Mankiw and Krugman are American economists. Mankiw has advocated for the implementation of Pigouvian taxes, and to this end he founded the informal Pigou Club, while Krugman won the Nobel Memorial Prize in Economics in 2008.).

251. See Press Release, H.K. Info. Serv. Dep't, Retail Prices of Auto-fuel (Oct. 22, 2008), available at <http://www.info.gov.hk/gia/general/200810/22/P200810220198.htm>.

252. See *id.* Land cost is one of fixed costs for fuel service stations in Hong Kong. In respect to land cost, there is a special lease and rental system for service stations in Hong Kong. Since June 2003, the Hong Kong Government has adopted new measures regarding the tender arrangements for service stations, which include putting up existing stations for tender upon the expiry of their leases instead of having the tenancy renewed automatically, and putting up stations for tender in batches, and allowing tenderers to submit a single bid for all the stations in a tender, with a view to facilitating new market players in acquiring a commercially viable number of stations to achieve scale merit. Depending on the availability of the stations in the year including those existing stations of which the leases would expire within that year, the available stations are arranged in batches of three to four months apart for sale. Each batch contains two to five stations. Recently, the Lands Department of Hong Kong Government announced that the tender for two service stations had been awarded on a twenty-one year land grant at a total premium of HKD 228.191 million. The two stations were awarded to ExxonMobil



salaries and utilities at service stations etc. and net margin. The duty for unleaded petrol is HKD 6.06 per liter, which accounts for thirty to forty percent of the fuel list price.<sup>253</sup> This is lower than the tax rate applying in some developed countries like the U.K. and Japan.<sup>254</sup> For diesel, as a result of the concessionary duty rate for ultra low sulphur diesel, which was taxed at HKD 1.11 per liter until December 2008, duty on diesel represents less than five percent of the retail price.<sup>255</sup> This is among the lowest rates in the region. Moreover, since the Hong Kong government aimed at making Euro V diesel (an ultra low sulphur diesel) the statutory standard in Hong Kong, the duty has been dropped from July 14, 2008 on Europe V diesel to encourage the market to switch to this more environmental-friendly fuel.<sup>256</sup> Petrol is used by private cars. (Diesel powered and liquefied petroleum gas (LPG) vehicles cannot normally be registered for private use in Hong Kong.) Private cars are primarily not a necessity in Hong Kong, thus the government tends to be notably reluctant in considering any proposals to reduce the duty rate for petrol. Vehicle ownership has increased at an acceptable rate in recent years in Hong Kong, with an average annual growth rate of 1.5 percent in the past ten years.<sup>257</sup> The duty differential on diesel and petrol reflects the government's policy in fuel consumption, that is, encouraging public

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Hong Kong Limited at HKD 59.509 million and HKD 168.682 million respectively. See Legislative Council, *Tendering Arrangements for Petrol Filling Station Sites*, OFFICIAL RECORD OF PROCEEDINGS (May 21, 2008), available at <http://www.legco.gov.hk/yr07-08/chinese/counmtg/floor/cm0521-confirm-ec.pdf>; see also Press Release, Hong Kong Government Information Centre, H.K. Info. Serv. Dep't, Tender Awarded for Petrol Filling Stations (Apr. 29, 2009), available at <http://www.info.gov.hk/gia/general/200904/29/P200904290257.htm>.

253. See Customs & Excise Dep't, *Dutiable Commodities in HKSAR* (2009), [http://www.customs.gov.hk/eng/major\\_dutiable\\_freeport\\_e.html](http://www.customs.gov.hk/eng/major_dutiable_freeport_e.html).

254. See Press Release, H.K. Info. Serv. Dep't, Retail Prices and Duty Rates for Vehicular Fuel (Nov. 14, 2007), available at <http://www.info.gov.hk/gia/general/200711/14/P200711140101.htm> [hereinafter Retail Prices and Duty Rates for Vehicular Fuel].

255. See Press Release, H.K. Info. Serv. Dep't, Fuel Price and Fuel Duty (May 28, 2008), available at <http://www.thb.gov.hk/eng/psp/pressreleases/transport/logistics/2008/200805281.pdf>.

256. See Env'tl. Prot. Dep't, *Air Pollution Control Strategies* (2009), available at [http://www.epd.gov.hk/epd/english/environmentinhk/air/prob\\_solutions/strategies\\_apc.html](http://www.epd.gov.hk/epd/english/environmentinhk/air/prob_solutions/strategies_apc.html).

257. See Retail Prices and Duty Rates for Vehicular Fuel, *supra* note 254.

transport while controlling private cars so as to help abate air pollution problems.<sup>258</sup> Since the statutory Euro V diesel is clean, and it is substantially consumed by the public transport sector (and for commercial goods transportation),<sup>259</sup> a low rate is conducive to the livelihood of those people relying on public transportation, and to the improvement in air quality as well.

From the above examples, it can be seen that, for efficient protection of the environment, the instrument of taxation should be employed efficiently. Government tax policy should promote efficient consumption of fuel and encourage switching to new, more fuel-efficient vehicles. This will save drivers money and also help to tackle climate change factors. Some research has argued that improving the fuel efficiency of new cars could make the single biggest contribution to tackling the climate change emissions from road transport.<sup>260</sup> Second, government should introduce fuel duty increases as part of a tax shift, transferring the burden of taxation from people and jobs onto pollution. If government could match the rise in taxes on fuel and other pollutants by cuts in taxes on jobs and income, it would be politically popular. Third, government should seek ways to provide better public transport and make cycling and walking safer and easier to encourage less use of private cars.

### *B. A Proposal for China*

In designing a consolidated fuel tax in China, we must bear in mind that adding any new tax to the existing tax system would likely trigger mass suspicion that government would waste the tax proceeds or at least spend them in a way inconsistent with the stated purposes. This is primarily because China lacks a sound, efficient, and transparent budgeting and accounting system to safeguard public

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258. See Press Release, H.K. Info. Serv. Dep't, Planning for Low Carbon Cities (May 22, 2009), available at <http://www.info.gov.hk/gia/general/200905/22/P200905220138.htm>; see also LEGISLATIVE COUNCIL PANEL ON ENVTL. AFFAIRS, PROGRESS OF MEASURES UNDER PEARL RIVER DELTA REGIONAL AIR QUALITY MANAGEMENT PLAN TO ACHIEVE 2010 EMISSION REDUCTION TARGETS, CB (1) 2437/08-09(01), at 2-3 (2009), available at <http://www.legco.gov.hk/yr08-09/english/panels/ea/papers/eacb1-2437-1-e.pdf>.

259. See sources *supra* note 258.

260. See FRIENDS OF THE EARTH IN LONDON, *supra* note 189.

money.<sup>261</sup> It is therefore necessary for the state's legislative body to fully consider every issue of fuel taxation, soliciting public opinion as widely as possible, before such new measures can be passed as a law. It is also necessary for policy makers to be innovative in their thinking about how to structure an advanced fuel tax over the medium-long term and how to enable revenues raised to be spent in smart ways.

A well-elaborated proposal is needed, covering matters of imposition principle, tax base, rate schedule, collection method, and use of the revenues. In making fuel tax policy, the Chinese government needs to taken into account such serious environmental problems as the increasingly poor air quality in the country, the unsafe dependence on imported oil and the inefficiency of fuel utilization, as well as the impact of the fuel tax structure on economic activities and on the poor.

What makes good tax policy? From a fiscal point of view, a "good" tax is one that produces maximum revenue with efficiency, stability, simplicity, and equality.<sup>262</sup> For revenue-raising purposes, goods for which demand is least sensitive to price increases should tend to bear the highest tax rates; goods that are close substitutes should be taxed at similar rates to prevent demand from switching from the higher-to-lower-taxed good (and hence reducing government revenue). Where equity is an important concern, goods accounting for a larger share of budgets for the rich than for the poor should be taxed more heavily; goods that produce large negative externalities, such as emissions from automotive fuels or congestion from excessive road use, should be taxed at high rates, also, in order to discourage their consumption and reduce social harm.

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261. See, e.g., Jun Ma & Xing Ni, *Toward a Clean Government in China: Does the Budget Reform Provide a Hope?*, 49 CRIME, LAW & SOCIAL CHANGE 119-38, 2008; see also OECD, *Models of Public Budgeting & Accounting Reform*, 2 OECD JOURNAL ON BUDGETING (2002).

262. See Jean-Philippe Barde, *Environmental Taxes in OECD Countries: An Overview*, in ENVIRONMENTAL TAXES: RECENT DEVELOPMENTS IN CHINA AND OECD COUNTRIES 32 (OECD, 1998); see also Robert Bacon, *Petroleum Taxes: Trends in Fuel Taxes (and Subsidies) and the Implications* (The World Bank Group, Viewpoint Note No. 240, 2001), available at <http://rru.worldbank.org/Documents/PublicPolicyJournal/240Bacon-831.pdf>. In the author's view, a good tax should also meet the requirement of equality.

In the case of fuel tax, this configuration may turn out to be complex or even paradoxical. Emissions from diesel fuel are more harmful than those from gasoline,<sup>263</sup> for instance, but encouraging the use of diesel-powered public transport may be desirable as a way of relieving congestion (and lowering overall pollution levels). Since China is so vast a state and so large a portion of the population has to rely on mass transit, diesel may not be well suited to the imposition of a high tax rate because of low demand elasticity. On the other hand, if a tax differential applies to gasoline and diesel, consumers would switch to lower-taxed diesel for private use, which is not, overall, environmentally favorable. To avoid this diversion and perverse inter-fuel substitution, it may be better to keep the tax rates on (unleaded) petrol and diesel the same (like the U.K.<sup>264</sup>) or within a small range of difference. A tax differential, however, can be applied to leaded and unleaded petrol to modify consumer behavior, which has proved effective in OECD countries.<sup>265</sup> In the meantime, the government should provide incentives for the use of “clean diesel” technology to lower emissions of the greenhouse gas carbon dioxide, like promoting the use of Europe V diesel in Hong Kong. Compressed natural gas (CNG) and LPG are two of the cleanest fuels, which currently are taxed at thirteen percent of the sales value according to the VAT law in China.<sup>266</sup> For the purpose of controlling air pollution, if these fuels can be provided at lower price than other fuels, vehicles using them will be more economically viable.

Secondly, setting a tax rate appropriately is an important yet difficult task. By comparison, in Europe and Asia, most countries have resorted to higher taxation to mitigate pressures on their oil

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263. See Bacon, *supra* note 262.

264. As mentioned previously, in the U.K., the fuel duty rate structure was simplified to a single rate for diesel and double rates for petrol (leaded and unleaded) from April 2008. The tax rate for unleaded petrol and diesel is same. See UK Hydrocarbon Oil Historic Rates, *supra* note 220; see also UK Hydrocarbon Oil Rates, *supra* note 219.

265. See Barde, *supra* note 262, at 23-24; see also JAN A. SCHWAAB & SASCHA THIELMANN, POLICY GUIDELINES FOR ROAD TRANSPORT PRICING (Deutsche Gesellschaft für Technische Zusammenarbeit GmbH Germany & UN Econ. and Soc. Comm'n for Asia and the Pacific eds., 2002), available at [http://www.unescap.org/TTDW/Publications/TPTS\\_pubs/pub\\_2216/roadprice\\_fullt\\_ext.pdf](http://www.unescap.org/TTDW/Publications/TPTS_pubs/pub_2216/roadprice_fullt_ext.pdf).

266. Amended VAT Regs, art. 2 (2).

insufficiency.<sup>267</sup> Germany for example, as the largest European economy, it has adopted a very high tax rate, only slightly lower than the U.K., on fuel consumption.<sup>268</sup> Such a high tax has contributed much to the development of energy-efficiency technologies and the popularity of lower-emission vehicles.<sup>269</sup> In sharp contrast, as the world's largest economy, the U.S. has adopted very low tax rates on fuel.<sup>270</sup> The ratio of the country's high-emission car ownership has long been higher than in other countries.<sup>271</sup> In China, some domestic energy experts have claimed that the new tax level, RMB 1 per liter on petrol and RMB 0.8 on diesel, would not play an important role in promoting energy conservation and emission reduction unless it is raised to RMB 3 or more per liter.<sup>272</sup> Indeed, levy standards should make resource prices reflect resource dependence and over-use and the costs of pollution abatement. Future reform will need to consider this view.

Currently, China allows retail fuel prices to fluctuate around a state-set benchmark.<sup>273</sup> When operating this oil pricing mechanism, the calculation methods for the final pricing should be improved and the external price references for oil products need to be readjusted in order to flexibly reflect supply, demand and price conditions on domestic and foreign markets and to help crack down on domestic oil speculation. To improve the pricing mechanism and for the long-term efficiency of fuel taxation, subsidies in fuel production and consumption (for private transportation) should be abolished. Some studies argue that environmental externalities should be corrected for by taxing polluting goods not by subsidizing nonpolluting alternatives (in the private sphere).<sup>274</sup> Subsidies in transport and fuel

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267. See Ma Hongman, *Fuel Tax Reform Needs More Transparency*, P.R.C. DAILY (Dec. 15, 2008), available at [http://www.chinadaily.com.cn/bizchina/2008-12/15/content\\_7306264.htm](http://www.chinadaily.com.cn/bizchina/2008-12/15/content_7306264.htm).

268. See *id.*

269. See *id.*

270. See *id.*

271. See *id.*

272. See *id.*

273. China's transport fuel pricing is now measurably more sensible than before, though the application of the pricing and taxation system is less clear. See *Driving in the Right Direction*, *ECONOMIST*, Sept. 19, 2009.

274. In the 2009 G20 meeting in Pittsburgh, world leaders announced they would phase out fossil fuel subsidies in the medium term. See *Fuel Subsidies, Fossilized Policies*, *ECONOMIST*, Oct. 3, 2009, at 74. The G20 account for eighty percent of

in China have been found to exert negative effects on resources and the environment.<sup>275</sup> The recent reform in fuel consumption taxation and pricing still provided subsidies for specific sectors and groups.<sup>276</sup> Some subsidies in the transitional period may be needed but some may not be needed. If subsidies are necessary in the short-term, they should be addressed within a coherent policy for reducing distortions in fuel and transport markets.

Energy and resource taxation policy needs to adjust to improve taxation standards to guarantee the reasonable earnings of the state as resource owners and to avoid the excessive shift of social income to some enterprises.

Third, how fuel tax revenues should be used must be clearly provided for by law, which has not only fiscal, but also environmental implications. There are two main categories where the use of fuel tax is concerned. The first way such tax revenue can be used consists in paying it into the general government budget in accordance with common fiscal principles. Secondly, the tax revenue can be allocated to specific purposes, some of which may be environmental, especially by setting up funds or mechanisms for reallocating the revenue to environmental protection programs (e.g. cleaning contaminated water). But allocation entails serious

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greenhouse-gas emissions. *Id.* China, as a non-OECD country, spent more than USD 25 billion a year on subsidies for fuel in 2007. *Id.* The International Energy Agency and OECD calculate that eliminating fossil fuel subsidies would result in a ten percent reduction in global greenhouse-gas emissions by 2050. *Id.* If China concentrates on better taxing (transport) fuel, it could have a major impact on the environment. *See* Ma Hongman, *supra* note 267.

275. *See* Chazhong Ge et al., *Subsidy Policy and the Environment in China*, in OECD, ENVIRONMENTAL TAXES: RECENT DEVELOPMENTS IN CHINA AND OECD COUNTRIES 109-59 (1999); *see also* *The Key of Fuel Taxation is the Oil Pricing Mechanism*, SHANGHAI SECURITIES NEWSPAPER, Nov. 27, 2007, available at [http://news.xinhuanet.com/comments/2008-11/27/content\\_10419397.htm](http://news.xinhuanet.com/comments/2008-11/27/content_10419397.htm). Prices of oil products in China have been state-controlled for many years. *See id.* Each time adjusting price was accompanied by governmental subsidies. *See id.* In the past, subsidies were mainly provided for the urban transport sectors, such as taxi and buses. *See id.* Government also subsidized oil companies when production costs and international crude oil prices rose, which however wasted taxpayers' money and resulted in energy inefficiency. *See id.* A study argued that domestic oil pricing should be referred to the international oil markets. *See id.* Otherwise, a tax based on distorted prices would be doomed to fail and any discussions of whether tax burden is high or low would be meaningless.

276. SC Notice, § 2, art. 3 (3).

drawbacks. Fixing the use of revenues of a tax in advance, without evaluating its economic and environmental rationale beforehand, may lead to economic wastage. For instance, allocating fuel tax to road infrastructure may lead to over-investment in that sector. Programs may last longer than their optimal period as a result of habits, administrative slowness, situation returns or other “acquired rights”. Notwithstanding these problems, allocating revenues does have its advantages. Thus, the political acceptability of taxes and charges can be enhanced because of transparency of use, where certain tax revenues are clearly dedicated to the popular cause of environmental protection.<sup>277</sup> Another possible mechanism to control the spending of earmarked fuel taxes revenue is a “sunset clause.” A sunset law is “[a] statute under which a governmental agency or program automatically terminates at the end of a fixed period unless it is formally renewed.”<sup>278</sup> If the earmarked revenue is set up under existing legislation or decrees, there should be a sunset clause for a discussion to determine when it should be regularized by passing basic legislation or closed down. Earmarked taxes are sometimes introduced to meet a temporary expenditure need and thus they are made subject to a sunset clause.<sup>279</sup> This may help improve initial estimates of their effects on revenue and to ensure systematic ex post evaluation so that waste or inefficiency of earmarked fuel taxes, if any, can be reduced.

Last, it is important to note that urban air emissions have a greater impact on human health than do emissions in rural areas.<sup>280</sup> This is because people are exposed higher concentrations of such pollution in urban areas. As a result, in urban areas transport demand has to be carefully managed to avoid detriment to the environment, quality of

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277. See Barde, *supra* note 262, at 30-31.

278. BLACK'S LAW DICTIONARY (8th ed. 2004).

279. Tax earmarking in its purest form means that all “revenue from a particular tax is kept separate from general revenue, can only be used for a specific government expenditure program and fully funds that program.” ROBERT CARLING, TAX EARMARKING: IS IT GOOD PRACTICE?, at ix, 1 (2007), available at [http://www.cis.org.au/policy\\_monographs/pm75.pdf](http://www.cis.org.au/policy_monographs/pm75.pdf). “Another version of pure earmarking sets aside a fixed portion of a particular tax for a specific expenditure programme and fully funds that programme . . . with the remainder funded from general revenue.” *Id.* at 2. “This represents a major departure from pure earmarking because segregation of the earmarked tax becomes meaningless when it is mingled with general revenue to fund a programme.” *Id.* at 1.

280. Gwilliam et al., *supra* note 140.

life, and public finance. Adequate access to opportunities for work, housing, shopping, entertainment is fundamental to economic growth and social welfare. Motorized transport can significantly expand these opportunities but an optimal mix of non-motorized, public and private transport can result in much better performance than unmanaged growth of private transport. With the rapid urbanization and strong increase in private car ownership, a well-planned public transport system is a necessity to help relieve air pollution problems and at the same time to facilitate market operation. In regulating public transport systems including the national railways, the key to controlling finance is transparency.

Another concern with regard to the road usage efficiency is to think about a tolling system as supplemental to fuel taxation in China. The current fuel consumption taxation and pricing reforms were, in part, aimed at eliminating highway tolls.<sup>281</sup> The government has provided a plan to solve the resulting debt payment and unemployment problems.<sup>282</sup> This tax policy has been used to control the previous arbitrary road charges that applied in many local areas. Although this policy is commendable to some extent, it does not necessarily increase the efficiency in utilization of roads. If all highway tolls are to be eliminated, users will have no incentive to take care how often they use (and abuse) the roads. Problems such as overloading or traffic congestion are notably more likely to occur. Therefore, a new tolling system may be needed to enhance road efficiency and reduce consumption of fuel as well. The tolling system should be based on a national electronic charging system with appropriate allocation of toll stations. The charge should not be collected on a lump sum that applied before, but on the basis of the number of kilometers driven or the amount of fuel consumption so as to actually reflect road usage as well as cars emissions. By this way, a more just, transparent and efficient fuel taxation system may be achieved with less unintended consequences.<sup>283</sup>

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281. SC Notice, § 2, art. 1 (1), (2).

282. SC Notice, § 2, art. 1 (6).

283. Collection of the road charge automatically via credit cards or debit cards, etc., is of great use to avoid tax evasion and inefficiency in charge administration. Payment and collection through a national uniform banking system will not only enhance the overall efficiency and transparency of fuel tax and charge system, but more importantly, facilitate the environmental protection purpose.



In general but particularly for an emerging market economy like China, the design of a fuel tax should be guided primarily by practical considerations of simplicity, uniformity and transparency. As the European Conference of Ministers of Transport (ECMT) concluded, in the short-term a fuel tax is the main fiscal approach to internalize negative externalities in view of the simplicities and relatively low cost of application.<sup>284</sup> The fact that CO<sub>2</sub> emissions are directly related to fuel consumption makes an advanced fuel tax an ideal instrument to respond to climate change concerns.<sup>285</sup>

## V. CONCLUSION

Various economic instruments have their own niches; they can be used effectively in combination, however. Although fuel taxes can strongly affect fuel consumption patterns, they have other significant welfare impacts. To address externalities from air pollution we need not just the single instrument of fuel taxes but a combination of instruments including environmental regulations. For instance, fuel quality standards and vehicle emission standards constitute an effective internalization instrument to reduce air pollution from road traffic. They make vehicle owners and fuel users pay for their cleaner fuels and vehicles, and reduce the environmental damage caused to others.

In China, a stream of environmental protection policies has been issued by government in recent years as a response to the rapidly growing awareness of the damage caused by natural disasters and environmental pollution.<sup>286</sup> In addition, security of petroleum supplies in China has been a frequent worry especially after oil imports spiked by seventeen percent in 2004 (above the trend growth

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284. Pollution, as a typical example of negative externalities, is problematic because the agents who own and use an asset do not pay for the indirect costs arising due to their usage. See A. M. BRANDENBURGER & B. J. NALEBUFF, *CO-OPERATION: A REVOLUTION MINDSET THAT COMINES COMPETITION AND COOPERATION* (1996). These indirect costs become “social costs” since they are borne by the society to a larger extent rather than by the polluters. *Id.* The inclusion of these indirect costs to polluters will reduce externalities—such an inclusive process is known as the process of internalization and it promotes cooperation. *Id.*

285. Stephen Perkins, *Environmental Taxation of Transport*, in *ENVIRONMENT TAXES: RECENT DEVELOPMENTS IN CHINA AND OECD COUNTRIES* 309, 324 (1999).

286. See ADB REPORT, *supra* note 102, at 53-56.