

*Alleviating Fuel Adulteration Practices in the
Downstream Oil Sector in Senegal*

September 2005

JOINT UNDP / WORLD BANK
ENERGY SECTOR MANAGEMENT ASSISTANCE PROGRAMME (ESMAP)

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September 2005

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Energy Sector Management Assistance Program
(ESMAP)

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Preface

The World Bank is supporting a number of initiatives to rationalize the downstream oil sector of Sub-Saharan African countries. Such initiatives include the phasing-out of leaded gasoline (part of the pollution reduction programs), the harmonization of fuels technical specifications between countries in the same region, and the programs to improve urban air quality.

This report examines ongoing visible malpractice and the lack of rigorous monitoring and implementing of accepted petroleum product standards in Sub-Saharan Africa in general, and especially in West Africa. Since many countries in the Gulf of Guinea are either supplied from Société Internationale de Raffinage (SIR) in Côte D'Ivoire or from Société Africaine de Raffinage (SAR) in Senegal, it was felt that it is more practical to address the problem at the source, that is, where the products originate and from where they are distributed throughout the subregion, including the hinterland. Since Senegal serves its domestic market as well as those of Gambia, Guinea Bissau, Sierra Leone, Liberia, Mauritania, and Mali, and given the tense situation in Côte D'Ivoire, it was also felt that it would be wiser to start looking at the case of Senegal and SAR first, and then draw preliminary lessons from there, for the subregion.

The study included: assessing the risk of malpractice in the downstream oil industry in Senegal; taking stock of the current processes and procedures to prevent, monitor, and punish abuses; and proposing an adapted detailed action plan to improve them. This work focuses on the automotive fuels and the industrial diesel oil, excluding the fuel oils and butane present on the Senegalese market.

The study team consisted of Amadou Kane, consultant, prepared this study. Eleodoro Mayorga Alba and Mourad Belguedj from the Department of Petroleum, Gas, Mining, and Chemicals of the World Bank supervised the work and provided comments to the consultant drafts.

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Executive Summary and Recommendations

1 Following a major reform that started in 1998, the downstream oil sector in Senegal is characterized by:

- A liberalized market with capped retail prices
- A de-facto monopoly on supply by the local refinery
- A de-facto oligopoly on wholesale storage by three oil majors
- A free and competitive retail subsector.

2 Inexpensive oil products are not available in the neighboring countries, which limits the possibility and scope of large-scale malpractice.

3 Beside the state of Senegal and the SAR, the main players in the wholesale sector are three oil majors (Shell, Mobil, and TOTAL) and to a lesser degree an independent international trader and a local independent. A growing number of smaller local companies operate on the transportation and retail subsegments. At present there are 54 companies with approved licenses to operate in the sector.

4 Evidence of ongoing malpractice in the downstream oil sector in Senegal exists, but it is difficult to quantify. It could be assumed that this malpractice takes place at a relatively small scale mainly at the secondary transportation and retail level. This transpires mainly due to the lack of an inexpensive supply source, and that up to now most of the players in the wholesale distribution and storage are professionals with a reputation to protect.

5 However, the probable access to the sector by new local operators taking advantage of the liberalization process in progress is changing the picture. It is paramount that the Senegalese authorities be prepared for this to avoid some of the uncontrolled downward drifts in the quality of products and services especially regarding health, safety, and environmental standards (HSE). These phenomena have been observed in some countries with similar open access to the entrance of new operators and weak institutional capacity. Criteria to grant access to the sector should include sufficient financial capacity and minimal operations volume.

6 Distortion in the prices of the various oil products and grades provides the main incentive for the ongoing malpractice in the downstream oil sector in Senegal. Taxes on the various oil products should be harmonized to avoid the significant price difference between oil products, as indicated below:

Table 1: Oil Products Price Differential
(Prices per Liter in U.S. Dollars as of December 2003)

<i>Product</i>	<i>Price*</i>
Premium gasoline	0.85
Regular gasoline (automotive):	0.78
Regular gasoline (fishery):	0.52
Kerosene	0.39
Diesel (automotive):	0.63
Diesel (industrial):	0.42
<i>*US\$1.00 = 550 CFA francs)</i>	

7 Compared with Mauritania that has the largest fishing industry in the region, the gasoline consumption in Senegal's fisheries appears to be four times larger. Thus, assuming that three-quarters (3/4) of the gasoline sold for the fisheries market is consumed by gasoline vehicles, and that nearly half of the kerosene and 20 percent of the industrial diesel is also consumed by diesel vehicles, the tax loss of could reach up to US\$25 million per year. The taxes lost because of these malpractices would amount to 15 percent of the taxes and duties collected from the sector.

8 The controls at the refinery seem to be the weak link. There are actually no controls by any governmental body or representative at the refinery. The customs and fiscal authorities rely entirely on the refinery for any information on the quantities and qualities of imported or produced hydrocarbons. There is no technical petroleum specialist working on the government's side to control the integrity of the data produced by the refinery. A very important percentage of the oil products marketed in Senegal has at some point been either produced or imported by the refinery. Given the weakness of these controls and the magnitude of the volumes involved if any malpractice should be taking place at that level, it would potentially have a very large impact. The Senegalese authorities should find a way to better control all interfaces between the refinery and the local and international parties.

9 At present there is a "light" regulatory system in place. However, there is a shortage of personnel with the adequate background and training in the petroleum industry working for the authorities. The Senegalese government should try to attract and keep such experts. The technical resources needed to fight malpractice in the sector should also be put in place (test laboratory, and so forth).

10 The authorities are not committed to punishing the wrongdoers in the sector. The government should assure that all individuals and/or organization suspected of committing any malpractice in the sector are brought to justice and punished, if convicted.

11 The coordination and cooperation between the various bodies of the government and the private operators playing a role in the fight against malpractice in the downstream oil sector should be improved.

12 Our recommendations can be grouped into three sets affecting the institutional level, the customs organization more specifically, and some technical issues.

Institutional


1. Commit the local authorities to reducing/eliminating product adulteration
2. Adjust the tax structure to level the retail price of various oil products
3. Strengthen the role and resources of the regulatory agency
4. Recruit experts and train public servants on the oil industry and products
5. Improve cooperation and coordination within CNH and oil companies
6. Communicate to the public to enhance awareness of oil product quality
7. Ensure proper law enforcement

Customs

8. Review and adapt the role of the customs services
9. Build and strengthen the capacities of customs services
10. Post a customs officer or team at the refinery

Technical

11. Set up a test laboratory
12. Put dyes and tracers in “risky” products (industrial diesel and regular gasoline)
13. Improve recordkeeping
14. Adapt glass bends on dispensers

Table 2: Brief Summary of Malpractice Situation on the Downstream Oil Sector in Senegal


	Imports & Refining	Distribution	Retail
Risks	Huge volumes controlled by 1 operator	Important volumes Tax free products	Distortions in retail pricing Undetectable adulterants Multiple actors & non professionals
Probability	Low	Medium	Very high
Potential impact	Very high	High	Medium
Solution / Controls	Set up controls at refinery	Improve customs capacity	Harmonize retail prices Introduce dyes & tracers Sound license granting procedure & post monitoring

1

The Downstream Oil Sector in Senegal

1.1 The downstream oil sector in Senegal represented over 1.5 million tons of oil products in total as shown in the detailed Table 1.1 below. The National Electrical Company (Senelec) absorbed 0.37 million tons of it.

1.2 The market is tiny compared to that of mature economies or some other African countries with a larger population.

Actors and Main Infrastructures

1.3 The National Oil Company in Senegal (Petrosen) has no activity and plays a very limited role if any in the downstream oil sector.

1.4 Senegal has a refinery (—SAR) that has a nominal capacity of 17,000 barrels/day or about 1 million tons/year. The majors operating in the country own the refinery (TFE with the majority of shares, Mobil, and Shell) along with the State of Senegal (10 percent of shares). The refinery was established in 1962 and has outdated technology. It supplies the national market and in part the oil market of the neighboring countries, none of which has any refining capacity.

1.5 The major oil companies have been operating in the sector in Senegal: TotalFinaElf, Mobil, and Shell. In addition, an independent international oil company, Addax, started to operate on the Senegalese territory in the mid 1980s but limited its operation to imports, storage, and exports mainly targeting the bunkering market. In 2000, a newly created local oil company (Elton) started its operation in distribution marketing and retail.

1.6 These are six oil depots in Senegal (excluding the refinery) with a total storage capacity of 218,000 m³. They are all located in the nation's Capital area, two of them being marine oil terminal located in the Dakar's harbor. TotalFinaElf, Shell, Mobil, and Addax own them, and they are all connected with each other and to the refinery by a network of pipelines. They are also all connected to the network of the National Rail Company. Most of them have road tanker loading facilities. It is estimated that this total storage capacity should cover the needs of the domestic market for at least the next 15 years (see reference # 5).

Table 1.1: Quantities of Oil Products in the Downstream Oil Sector in Senegal in 2003

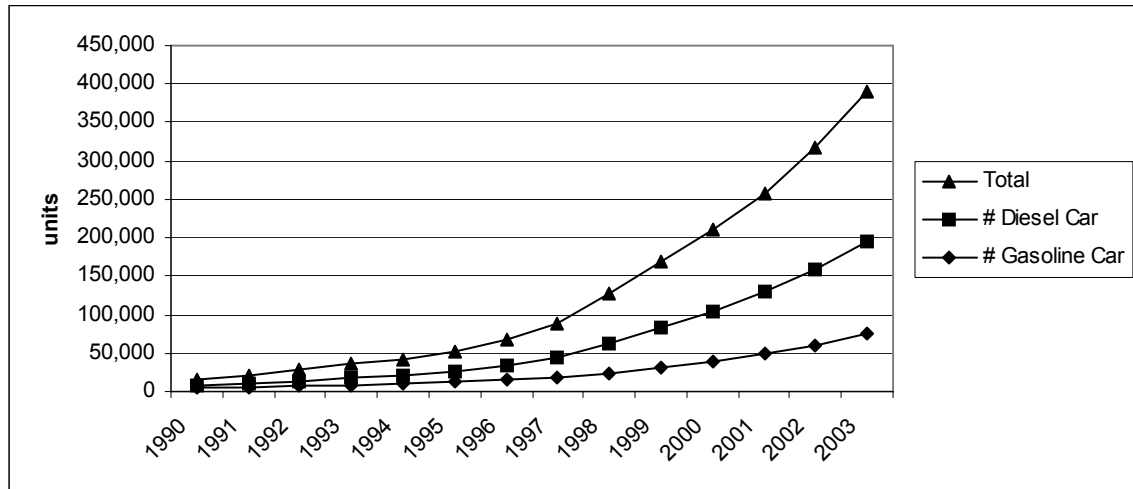
Products		Retail	Industrial	Fishery	Bunkering	Electrical Co
Premium Gasoline	m ³	83,813	4,472	-	-	-
Regular Gasoline	m ³	3,632	225	52,230	-	-
Kerosene	m ³	9,883	15,277	-	-	-
Diesel Automotive	m ³	331,655	58,190	-	-	51,078
Total 1	m ³	428,983	78 164	52,230	-	51,078
Grand Total	m ³	610,455				
Diesel Industrial	Tons	-	101,272	-	73,577	69,594
Fuel Oils	Tons	-	174,595	-	-	256,620
Jet Fuels	Tons	-	209,486	-	-	-
Butane	Tons	-	118,300	-	-	-
Bitumen	Tons	-	4,047	-	-	-
Lubricants	Tons	5,356	7,367	301	525	-
Total 2	Tons	5,356	615,067	301	74,102	326,214
Grand Total	Tons	1,021,040				

Source: Senegalese “National Committee for Hydrocarbons”

1.7 About 10 companies are established as transporters of oil products in Senegal. Together, these companies operate about 150 tankers. The Ministry of Hydrocarbons and the Ministry of Transport grant the transport licenses jointly.

1.8 Over 400 retail stations operate on the Senegalese territory. The oil companies own most of the stations, but a few belong to small independent retailers. All stations are branded and supplied by a major oil company or Addax are not present on the retail segment of the sector. There is a state-owned retail service station.

1.9 Imports of secondhand vehicles were allowed in the mid-1980s. The immediate effect was a significant increase in the number of cars. There are about 200,000 vehicles in Senegal. Because of the important price difference between automotive diesel and automotive gasoline, most of the cars coming into the country are diesel. There is a clear and steady shift of the automotive fuels demand from gasoline to diesel.

Figure 1.1: Evolution of Senegal Number of Cars—1991–2003

Source: Essic Consulting

The Regulatory Framework

1.10 In 1998, the Senegalese House of Representatives (Assemblée Nationale) passed a bill that dramatically changed the downstream oil sector by gradually liberalizing it.

1.11 Among other resolutions, it was decided to create a “light” regulatory agency dedicated to the downstream oil sector (versus energy sector), the National Committee for Hydrocarbons (Comité National des Hydrocarbures—CNH). The regulatory agency does not set the oil policy, rather it implements the policy. Members of the CNH comprise:

- A representative of the Ministry of Hydrocarbons (president)
- A representative of the Ministry of Finance
- A representative of the Ministry of Trade
- A representative of the Ministry of the Environment
- A representative of the Ministry Transport
- A representative of the Ministry of Civil Protection
- The General Director of Customs
- The General Director of the Dakar Harbor

1.12 Unfortunately, there is no joint oil companies/government committee.

1.13 Senegal has open access rules to the downstream oil sector. Access to all segments of the sector is not limited in number (only subject to obtaining the required licenses and permits). The CNH examines all license demands for import, refining,

export, storage, distribution, or transport. It then makes recommendations to the Ministry of Hydrocarbons, which delivers the licenses.

Table 1.2: Number of Licenses Treated by “Comité National des Hydrocarbures” as of December 2003

	Import	Distribution	Storage	Transport	TOTAL
# applications	8	19	9	28	64
# processed	8	19	9	28	64
# granted	7	14	8	25	54
# pending	1	5	1	3	10
Source: CNH					

1.14 The new act also established a new pricing regime, letting them be freely determined by the market but cautiously set a maximum price to limit pricing excesses. The maximum price limits are set every month by decree with a mechanism set by law and depending on the Platts (see decree no. 98-342 of April 21, 1998).

1.15 In May 2000, the Nordic Consulting Group produced a report for the World Bank on the *Regulation of the Downstream Oil Sector in Sub-Saharan Africa* (see reference list). Some of the key findings and recommendations were:

- The political stability in Senegal was ranked “good” and the country was in the second quartile of the “Transparency International Corruption Rating.” Except for television, media is free, and there are a fair number of independent newspapers and radio stations.
- The commercial accessibility of the oil market to new entrants was ranked “good” for “access to supply” as well as “access to storage.”
- Regulatory agencies should be set up and funded through a built-up unit charge paid directly to the body. However, the operational costs of the agency should be kept as low as possible in order to limit the impact on the consumer price as much as possible, given the very low GNP per capita of the country.
- The regulatory agency should be independent and have the capacity to resist undue influence from political authorities and/or the oil industry.
- The regulatory agency should be designed efficiently.

1.16 Most of the recommendations made by the “Nordic Consulting Group” in its report were implemented in the set up of the regulatory agency in Senegal in 1998.

1.17 The very small size of the market makes it difficult to set a policy that would ensure effective access to supply and storage and fair price competition without some form of controls. This is one of the reasons why, there has been no real price competition, even after the introduction on the market of a new player that is not a major.

1.18 The health, safety, and environment (HSE) standards of the oil companies have always been higher than those of some departments of the government in Senegal. Moreover, the government has never had the technical capability to control effectively the HSE performance of the majors operating in the country.

2

Assessing the Incentives for Malpractice

Product Quality and Specifications

2.1 According to the law as it stands (Act # 98-31 of April 14, 1998—article16), the norms and specifications of the oil products marketed in Senegal are set by government decree. These specifications were changed twice since April 1998 especially to lower the level of lead in gasoline in accordance with the leaded gasoline phase-out program in Sub-Saharan African countries initiated by the World Bank group and to which Senegalese authorities have adhered.

2.2 It is expected that from the year 2005 all the gasoline market in Senegal will be lead free and the technical specifications of the products will start to be harmonized at the sub-regional level in accordance with the SIR refinery of Cote d'Ivoire and the TEMA refinery of Ghana.

2.3 As they stand, the main specifications of the oil products marketed in Senegal are:

Table 2.1: Technical Specifications of Oil Products Marketed in Senegal in 2003

Fuel	Grade	Parameter	Value		Norm
Gasoline	Premium (Essence Super)	Octane Index	95 RON	Mini	M 07 026
		Lead	0.15 g/l	Maxi	M 07 043
		Sulfur	0.15% of weight	Maxi	T 60 142
		Color	Colorless		
Gasoline	Regular (Essence Ordinaire)	Octane Index	87 RON	Mini	M 07 026
		Lead	0.15 g/l	Maxi	M 07 014
		Sulfur	0.15% of weight	Maxi	T 60 142
		Color	Red		
Diesel	Kerosene (Pétrole lampant)	Density	0.820 kg/l at 15°C	Maxi	M 60 101
		Sulfur	0.15 % weight	Maxi	T 60 142
	Diesel— vehicle grade	Density	0.820 kg/l at 15°C	Mini	T 60 101

	(Gas-oil)	Cétane Index	45 Mini		ISO 4264
		Sulfur	0.5% of weight	Maxi	M 07 053
	Diesel—industrial grade	Density	0.820 kg/l at 15°C	Mini	T 60 101
	(Diesel-oil)	Cétane Index	40 Mini		ISO 4264
		Sulfur	0.5% of weight	Maxi	M 07 053
		Color	Red		
<i>Source:</i> Act # 9831 of April 14, 1998—article 16					

2.4 The gasoline for the fisheries is regular gasoline blended with 2 percent of lubricants. The blending is done in the depots before the product is distributed on the fishery retail market. When this blended gasoline is used on the automotive market the lubricants contained in the gasoline are burned and released in the atmosphere. As such, the use of this product in normal gasoline vehicles generates a serious air pollution problem and impacts public health.

2.5 Even though its production cannot always satisfy the demand of the national market, the local refinery manufactures most of the oil products marketed in the country.

2.6 It should be noted that due to the good quality of the crude oil usually processed by the refinery, some of the products have a quality that is superior to the required standard. This is true in particular for the industrial diesel grade (diesel-oil) that is very similar in quality to the vehicle diesel grade (gas-oil).

Adulterants

2.7 Except for some solvents used in its process by the local groundnut oil factory in limited quantities, we have not identified (from official customs authority source) any potential inexpensive adulterant available on the local market that could be used to alter the quality of the oil products.

Distortions in Pricing

2.8 The maximum prices admitted by law (and effective prices on the retail market) of the oil products marketed in Senegal were as follows in December 2003:

Table 2.2: Oil Products

Fuel	Price per Liter (in U.S. dollars)*
Premium	0.85
Regular (automotive)	0.78
Regular (fishery)	0.52
Kerosene	0.39
Diesel (automotive)	0.63
Diesel (industrial)	0.42
*US\$1.00 = 550 CFA francs)	

2.9 Although these prices may vary on a monthly basis, no significant changes have been noticed in the price difference between any two products over time. The nominal increase of the oil price in USD/Barrel has been to a certain extent compensated by the revaluation of the Euro to which the CFA is linked.

2.10 The relatively low price of some of the grades (regular/fishery, kerosene, and diesel/industrial) is mainly due to a low tax policy on these products for welfare and social issues or to support and stimulate some sectors of the economy (traditional fishery, industry). Kerosene is mainly used for lighting in areas of the country without access to electricity. The diesel/industrial grade is used in the bakery business, and the artificially low price of this fuel helps keeping the price of bread at a reasonable level.

2.11 However, it clearly appears that the price difference between kerosene and diesel/industrial grade on the one hand and diesel/automotive grade on the other hand creates a very strong incentive for malpractice at the retail level. The same can be noted about the price difference between premium gasoline and regular/fishery gasoline.

2.12 Estimating that three-quarters ($\frac{3}{4}$) of the gasoline sold for the fisheries is consumed in regular gasoline cars and that half of the kerosene together with 20 percent of the industrial diesel is also consumed by the regular diesel vehicles; given the price differentials, the total lost in taxes reaches US\$25 million per year.

2.13 The customs and fiscal authorities collect about US\$165 million from tax and duties on petroleum products (12 percent of the Senegalese US\$1.2 million budget). Thus the lost caused by the adulteration of the oil products would represent a 15 percent of the taxes and duties generated by the sector.

2.14 The International Monetary Fund issued a report in May 2001 on the “Budgetary Aspects of the Oil Sector Policy” in Senegal. The report showed that the tax base in Senegal is one of the highest in the region. The report recommended to:

- Modify the structure of the tax base of the various oil products in order to make them converge.

- Consider a transitory system that would maintain the level of excise while correcting the relative distortions in prices.

2.15 It is clear that important price difference between oil products is the main incentive for malpractice in the downstream oil industry in Senegal. These gaps in prices are created by the tax policy on oil products of the Senegalese State. A change in tax policy that would make the oil product prices converge while maintaining the general level of revenue for the State of Senegal would significantly limit the ongoing malpractice and have a positive impact on collected taxes.

3

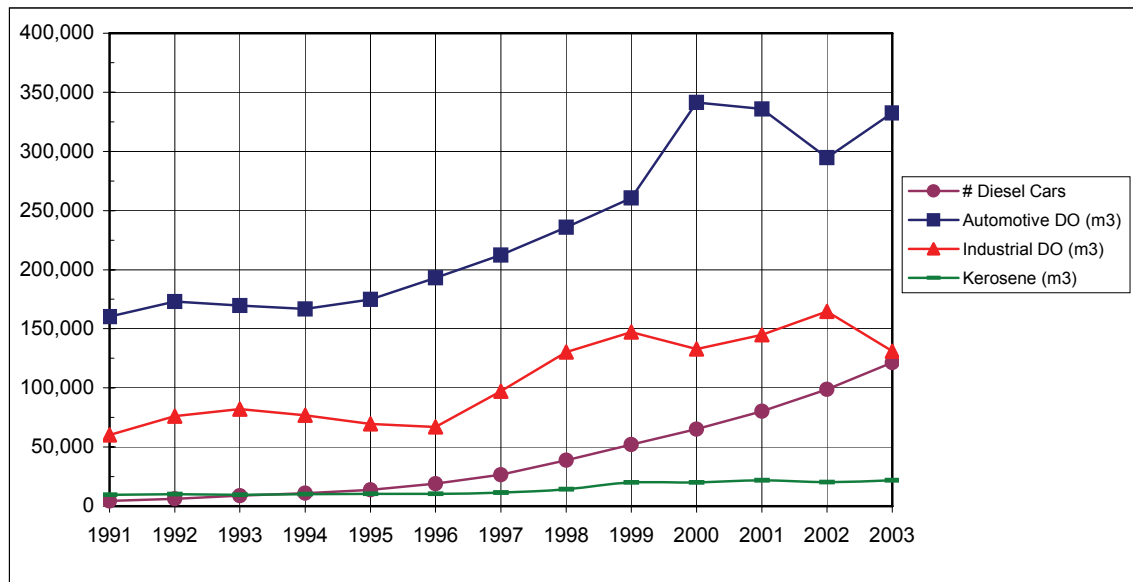
Tentative Quantitative and Qualitative Assessment of Malpractice Level

Approach by Car Numbers vs. Retail Oil Consumption

3.1 It is very difficult to assess with precision the level of ongoing malpractice in Senegal. One way to try and estimate the supposed level of malpractice is to compare the evolution of the car numbers with that of the oil product sales on the retail market.

3.2 The available data for this analysis is summarized in the graphs and table below.

Figure 3.1: Evolution of Diesel Car Numbers and Diesel and Kerosene Oil Product 1991–2003

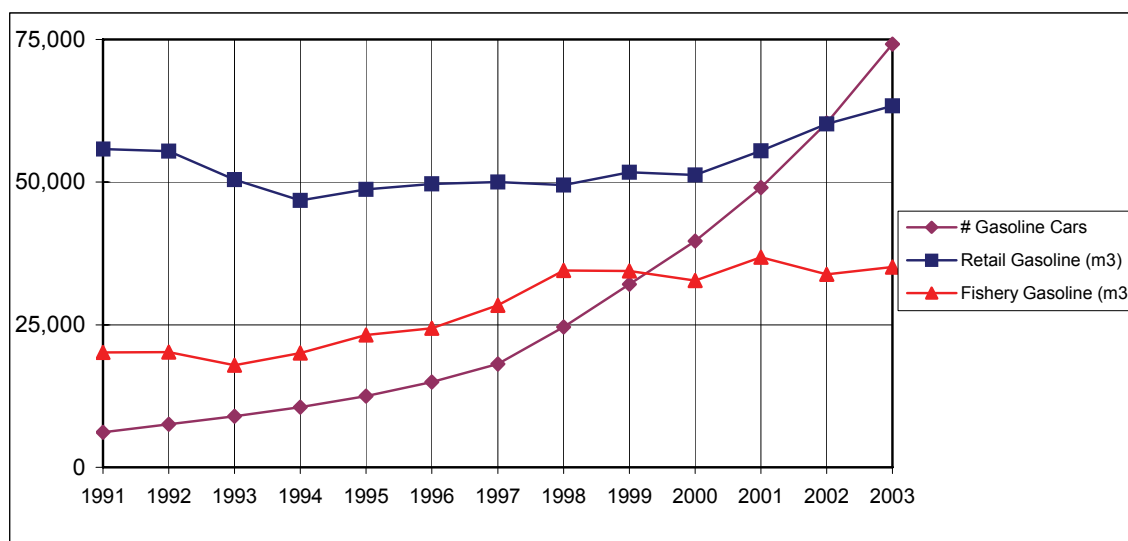


Source: Senegalese “National Committee for Hydrocarbons” & Essic Consulting

3.3 The above graph shows the evolution of the diesel car numbers and that of the automotive diesel sold in the retail market and the other fuels that could be used to adulterate automotive diesel oil.

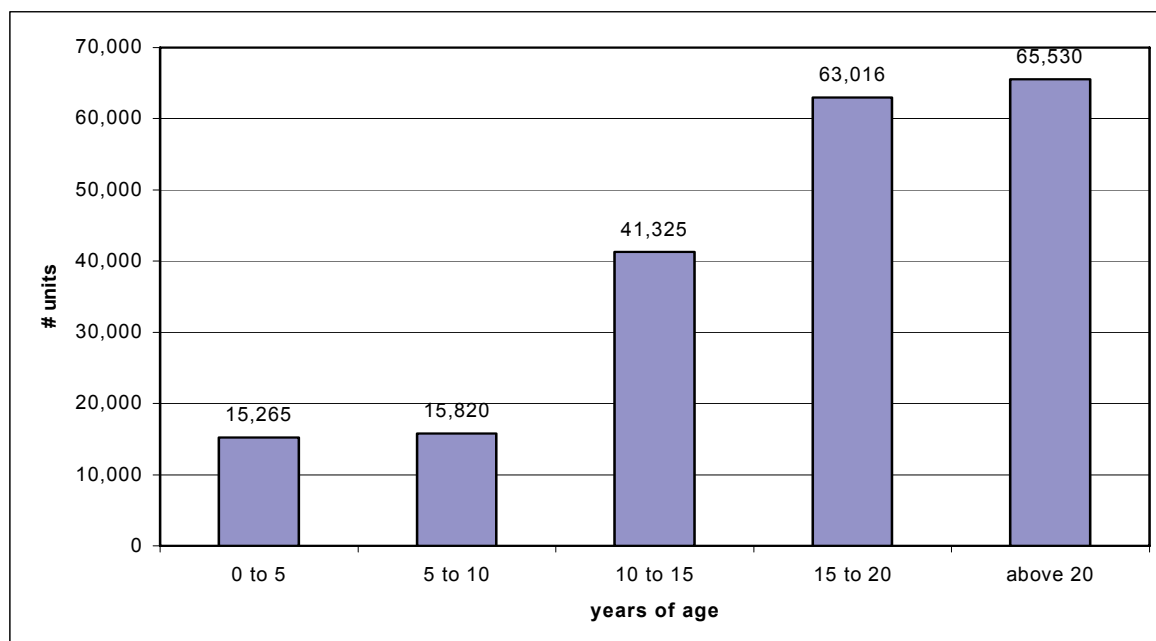
3.4 The graph shows a sudden rise of automotive diesel oil consumption in the year 2000. At the same time, it shows a slight decrease in industrial diesel oil consumption. No particular event was reported in the automotive or industrial diesel oil market to justify both movements. The gap between a reasonable expectation of the projected automotive diesel oil consumption in 2000 and the recorded consumption is about 50,000 m³ or almost 15 percent of that year's automotive diesel oil consumption. This could suggest that in the year 2000, important quantities of cheaper industrial diesel oil were sold on the automotive retail market. This is confirmed by the peculiar drop in automotive diesel oil consumption in the two following years (2001 and 2002) even though the diesel car numbers continued to rise at a steady rate. In 2003, the phenomenon observed in 2000 reoccurs.

Figure 3.2: Evolution of Gasoline Car Numbers and Gasoline Oil Products 1991–2003



Source: Senegalese “National Committee for Hydrocarbons” and Essic Consulting

3.5 The above graph shows the evolution of the gasoline car numbers and that of the automotive gasoline sold in the retail market and the other fuels that could be used to adulterate automotive gasoline.

Figure 3.3: Senegal Car Park by Age Group in 2003

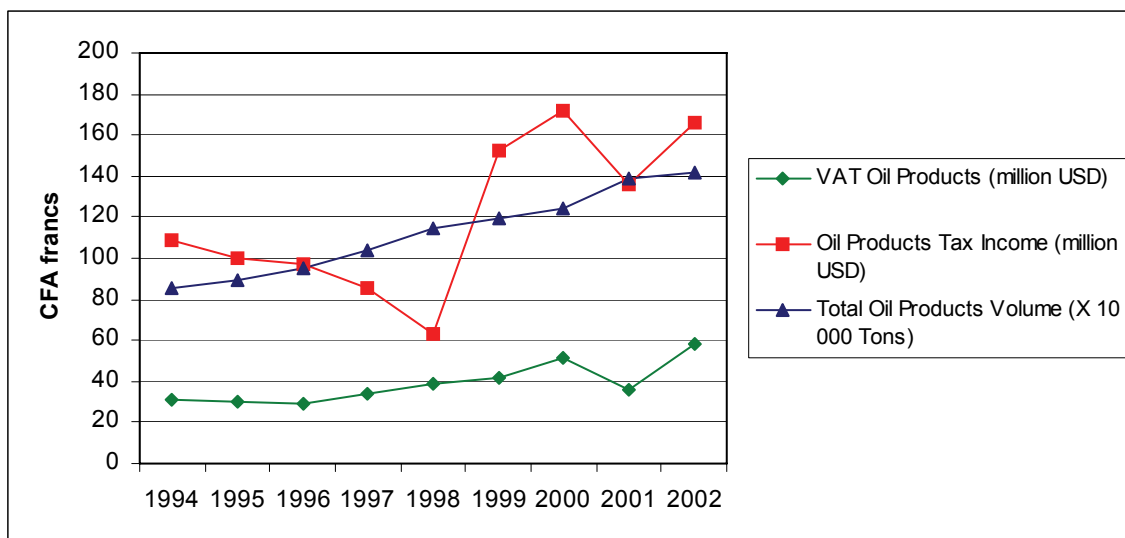
3.6 The car numbers grow faster than the demand for transportation. The car numbers have been growing at an average rate of 25 percent per year between 1993 and 2003, about 10 times faster than the population. This tendency sped up after the importation of used cars was authorized in 1995. As a consequence, the average mileage and fuel consumption of cars has dropped. The car/population ratio is still very low in Senegal (1 car for 45 people).

3.7 In Senegal 85 percent of all the cars are more than 10 years old and 63 percent more than 15 years old. The impact of these old cars on the environment is quite significant.

Approach by Tax Revenues Vs. Total Oil Consumption

3.8 The 1998 reform totally changed the tax structure.

3.9 The graph below shows the evolution of the total oil market volume in Senegal and the taxes on oil products since 1994.

Figure 3.4: Evolution of Oil Market Volume and Oil Tax revenues 1991 & 2003

Source: Senegalese “National Committee for Hydrocarbons” & Direction de la statistique

3.10 The quality of the data during the four years since the 1998 reform—especially in 2001—makes it difficult to draw any conclusion from this information.

4

Along the Supply Chain

4.1 The acts and laws laying the framework of the downstream oil sector in Senegal clearly distinguish the various segments and activities of the sector: importation, refining, exportation, storage, transportation, distribution, and marketing. Each of these activities can have specific aspects that make it vulnerable to a certain type of malpractice.

Importation

4.2 The Senegalese law specifies that all imports of oil products in Senegal have to be made by sea route. In practice, it would be difficult to do otherwise, even for an ill-intentioned operator, given the set-up of the infrastructures and that there is no pole of production or supply in any of the neighboring countries.

4.3 This considerably limits the points of entry for such products on the national territory and should ease the task of the body in charge of the controls. However, if this body does not have the means to fulfill its duty duly and if there is an incentive for a holder of an import license to yield to malpractice, the potential loss for the authorities could be massive.

4.4 So far, import licenses have only been granted to multinational oil companies, the local refinery owned by these multinationals and Addax. The corporations that operate on a global scale have no interest (and actually a lot to lose) in engaging in large-scale malpractice. This is because the press and global organization dedicated to protecting the environment watch the corporations very closely and they have their own standards and procedures that are generally much more stringent than that of developing countries.

4.5 However, the liberalized framework rightly set by the Senegalese institutions in 1998 could lead to the entrance of smaller and less scrupulous actors at this level of the supply chain. If the body in charge of the controls is not properly equipped to carry out its tasks, it could lead to undetected malpractices.

4.6 Hence the importance of building and reinforcing the capacities of the Senegalese body in charge of the quantity and quality controls of the oil imports.

4.7 De facto, the customs organization is the entity best positioned to perform such controls. The next best-positioned organization to perform this task for the government, as far as its mandate allows or demands it, would be the Ministry of Trade or an entity it supervises. But, currently, this Ministry is very far from having the means of conducting such a mission (see the paragraph on Marketing below). The “Comité National des Hydrocarbures” is only an advisory board as stipulated in the 98-31 act that creates it and has no executive power. In a country like Senegal with weak institutional capacity and scarce resources, it would not be recommended to create another body or stretch that of an existing one to perform this task (see the Recommendations of Nordic Consulting Group in its report on *Regulation of the Downstream Oil Sector in Sub-Saharan Africa*, May 2000). Besides, given its presence at the borders of the country, one of the missions of the customs organization in Senegal is to assist other government entities when necessary.

4.8 The customs organization in Senegal has a brigade that is exclusively dedicated to perform all customs operations and procedures related to the oil products imported into the country or exported from it (bureau de Dakar Pétrole). Their offices are located inside the harbor, as close as possible to the center of the oil product import activities. In accordance with the customs procedures this brigade is supposed to check the quantities and the qualities of the imported and exported oil products. In theory, the controls on qualities performed by the customs authority would only be necessary in order to identify the products and link them to the proper customs classification to further collect the appropriate related taxes.

4.9 Today, for all imports or transfer from the refinery to its customers, the “Dakar Pétrole” customs brigade relies entirely on the documents and certificates produced by the importing company, the refinery, their suppliers and/or the third party controller the contracting parties may have appointed. Often, the company importing the products and its supplier can belong to the same mother company that also holds important shares on the refinery. In fact, the degree of conformity of these commercial transactions with the Senegalese law depends almost exclusively on the integrity of the commercial party involved.

4.10 None of the dozen or so agents of “Dakar Pétrole” has any background education, qualification or consistent training on the petroleum field. The turnover rate is important, given the necessary time for a new agent joining the brigade to understand the specificities of oil products.

Refining

4.11 As already mentioned above, most of the oil products marketed in Senegal come from the local refinery. These products are transferred, mainly via pipelines, to the distributing companies. Therefore to a large extent the activities and transactions in the downstream oil sector are initiated at the refinery.

4.12 It would be worth assessing how a (or a small team of) specifically trained state officer(s) present on a full-time basis at the refinery with a clear mandate and free access to the required information and facilities could help the government of Senegal have a better understanding of and control over how these transactions are performed and whether they are timely and properly reported. Such measures have been implemented in other Sub-Saharan countries. In Kenya, several customs and government officials are posted on a full time basis at the refinery. They have free access to the installation and to all the information necessary to perform all the controls required by the authorities.

Exportation

4.13 Oil products are exported from the Senegalese territory by sea, rail, or road. The brigade of “Dakar Pétrole” is in charge of supervising these operations.

4.14 Most of the export by sea is linked to the bunkering activity. The product is pumped directly from the storage tanks at the marine oil terminal to the ships. This activity does not present any important specific exposure to malpractice.

4.15 For the exports by rail or by road, there is a procedure that consists of having the product physically escorted by a customs officer all the way to the border. This is probably the safest way to ensure that a product destined for a neighboring country effectively leaves the national territory as declared. However, the expected benefit for a potential smuggler is so important (more than 10 times the average monthly salary of a customs officer for a single lorry load of 30 m³ of automotive diesel) that there is a real possibility and even probability of bribery.

4.16 The same “escort” procedure is used for “low-tax” oil products intended for the traditional fishery market or industries to make sure that the products are delivered to the right place on the national territory.

Transportation

4.17 To keep oil product prices uniform across the country, the government of Senegal has put in place a price adjustment system to balance the cost of transport in remote areas. This creates a very strong incentive for malpractice, especially on the transport segment of the downstream oil sector. This does not necessarily affect the quality of the products traded on the market, however, it can have a significant financial impact on the industry.

4.18 About 25 licenses have been granted to independent operators for road transport of oil products. There are about 250 active road tankers in Senegal with a total capacity of over 6500 m³.

4.19 Even when the owners and managers of the transport companies operating these road tanker are not involved in any malpractice, the drivers often have a very strong incentive to adulterate the product given the high unit price of the oil products and the very low wages they are being paid. This type of malpractice happens often but on a

relatively small scale at a time. It tends to affect the quantities more than the qualities of the products, and it mainly affects the dealers.

Distribution

4.20 The players on the distribution segment of the downstream oil sector in Senegal are mainly the major oil companies (TFE, Mobil, and Shell) and an independent Senegalese oil company (Elton) that started operating in 2000.

4.21 The appearance of the local oil company in the sector is the one most visible and positive effect of the liberalization of 1998. It is appreciable that this company operates at a standard that is very much comparable to, if not better than, that of the majors in the country. This is of course to the credit of the owners and managers of this company, but also to the Senegalese authorities that demonstrated an efficient monitoring of the liberalization process.

4.22 However, in order to achieve the full benefits expected from the liberalization, the market should reach the point where the competition will decrease retail prices without affecting the quality of the products and service. In order to reach that point in a small market like the Senegalese one, the new entrants will have to gain more market share and gain enough leverage to break the de facto oligopoly.

4.23 For this new horizon to open up in the downstream sector in Senegal as soon as possible, it would be important for the authorities to help the new entrants overcome the barriers at the upper level on the supply chain—the access to storage capacity. Doing so and given that the total storage capacity in the country is sufficient to face the growth of the national market for the next ten years at least, the authorities should ensure that the adopted strategy does not impact the price of the product at the retail end or infringe the rights the present owners of the storage facilities are entitled to in a free economy.

4.24 At this level on the supply chain and below, the customs organization is less present, and the relevant government entity that should control the quality of the products should be the Ministry of Trade (MOT). Such controls by the MOT are not done simply because the Ministry does not have the adequate human and technical resources.

4.25 The players in the distribution segment are the same as in the imports segment (except for the new independent company). It should be expected that these players having their own procedures and controls to prevent malpractice on a large scale should also apply them to this segment. The majors have to protect their image and demonstrate their integrity in all segments of the sector where they are present. However, for practical reasons, it is much more difficult for the oil companies to control their agents and enforce their procedure at this level. The procedures are more complex than at an oil terminal, the agents greater in number, and the interface with the outside world much greater.

4.26 All the major oil companies (as well as the “new” entrant) have extensive and detailed procedures to prevent malpractice and control the quantities and qualities of the product they sell all the way down to the retail end. This did not prevent one of the

majors operating in Senegal to uncover malpractice activities that had been going on in the company for quite some time and at a relatively important scale. Many agents working for this company at all levels (from top managers to clerks) were involved in the malpractice case and later felt obliged to dismiss. They were operating together with dealers, agents of transport companies and other outside complicities. This demonstrates both the very high incentive for malpractice in this and at “lower” segments of the supply chain (well-paid top managers were willing to risk their careers) as well as the necessity to have an efficient control procedure to fight against malpractice (the malpractice went undetected for some time, even with the control procedures of a world class major oil company).

4.27 Here also, it can be feared that if less scrupulous players enter the market at this level and engage in malpractice at an important level, the current capacity of the authorities to detect it will be absolutely insufficient.

Marketing

4.28 There are a little over 400 gas stations in Senegal. The distributing companies operate between a third and a half of these outlets. Independent businessmen who have franchise contracts with the distributing companies operate the rest of the service stations.

4.29 There is an average of 5 to 6 people working on a full-time basis on a retail site (there is no self-service). At this level most of the malpractice happening is the deed of the staff on site. The main victims of this malpractice are the operators (that is, the distributing company or the independent dealer).

4.30 Most commonly, the pump attendants and/or their supervisors find a way to set back the meter on the product dispensers and pocket the corresponding amount of money. Since the meters are normally locked within the dispensing devices, they usually do this with the complicity of the technicians in charge of the maintenance of the dispensers and share the benefits of their embezzlement with them. There are only 2–3 companies in Senegal licensed to maintain these devices.

4.31 When the dealer’s controls on site are weak, another commonly spread type of malpractice at this level is the alteration of stocks in the books.

4.32 The types of malpractice mentioned above do not affect the quality of the products. On the contrary, when gasoline for the fishery industry is blended or sold as automotive gasoline or kerosene or industrial diesel is mixed into automotive diesel it downgrades the product quality. However this degradation of the quality is not significant since gasoline for the fisheries has the same technical specifications of the regular gasoline and the kerosene and industrial diesel are mixed in a limited percentage.

4.33 It should be noted that the interface between the transportation and the retail distribution is a very sensitive link in the supply chain. The reception of the oil products at the retail station is always a delicate operation and very difficult to control when the receiver lacks experience. Transporter staff has many tricks to alter the quantity and

quality of the products they deliver, and the staff at the retail station does not always have the technical tools or appropriate training to detect them. Hence, some malpractices by the transporters and/or their staff also have a significant impact on the quantities and the qualities of the fuels sold at the service stations.

4.34 Since the dispensers at the gas stations are not equipped with any device that could allow the customer to actually see the product delivered to him (glass bend for example), it is very difficult for him to have any idea of the quality of the product he is getting, even when there is a color differentiation between the various grades. By adapting such devices to the dispensers and informing the public of the color difference, it should be possible to limit the fraud on fuels quality at the gas station. If such a measure is adopted and implemented, it would then be worth considering dyeing the industrial diesel oil with a distinctive color, since a lot of the fuels adulteration is done using this product.

4.35 The Ministry of Trade is in charge of the calibration and control of the dispensers, which helps to combat short selling. Unfortunately, mostly because the Ministry is understaffed and under-equipped to perform all its duties across the national territory, these controls are not done frequently enough. This Ministry is also in charge of ensuring that prices are in conformity with the price cap set for the oil products.

4.36 The Ministry of Environment is in charge of the calibration and controls of the underground tanks at the service station. Here also, and for the same reasons, the controls are not sufficient.

5

Around the Supply Chain

The Consumer's Perception

5.1 The combination of the high price of the oil products and the very low purchasing power in a developing country like Senegal has most costumers focusing on the prices and availability of the oil products rather than on its quality.

5.2 Customers make most of the complaints on the quality of the products when they have a mechanical breakdown that they attribute to bad fuels. They usually make these complaints to the dealer or the distributing oil company. It is only when they are not satisfied by the way the problem has been dealt with at this level that they refer to the authorities. Authorities do not monitory these cases adequately, however, it is probable that there are few complaints.

5.3 A detailed survey on the customer's perception of the oil products sold in Senegal could be done at a reasonable cost by one of the professional surveying firms operating in Senegal.

Failures in Law Enforcement and Prosecution

5.4 The police force (gendarmerie) is very much aware of some of the illegal activity going on in the downstream oil sector in Senegal. They know where these oil products are illegally sold in cans or drums on a regular basis.

5.5 The gendarmerie several times has caught some perpetrators of these crimes in progress, arrested them, and handed them to the judiciary system only to see them freed a few days or hours later.

5.6 It should be noted that the judicial framework to repress these crime is in place (act #94-63 of August 22nd 1994 – title 4). Only, for some reason, the law was not prosecuted, which has discouraged the few willing police squads from enforcing the law.

Controlling the Quality of the Oil Products

5.7 The only efficient laboratory sufficiently equipped and with the proper human resources to check the quality of the fuel products in Senegal is the refinery's laboratory. The oil companies have some small units with limited resources in their depots.

5.8 The refinery's laboratory does all the required tests for their own needs and, upon request, for any other organization. Even the international quality control firms operating in Senegal (Véritas, SGS -Société Générale de Surveillance, for example) rely on the refinery for their tests.

5.9 Some organization (SGS) have improved the procedure by having their own certified technician witness the testing of their samples at the refinery, but they still depend on the willingness of the refinery to do these tests for a third party.

5.10 There is clearly a need for a properly equipped and adequately staffed laboratory in Senegal to test the quality of oil products. This laboratory should be either owned and operated by the Senegalese government, or be independent and certified. In the latter case, the authorities should sign an adequate long-term contract with the laboratory and implement a procedure to ensure that the laboratory remains independent and certified.

6

Conclusion and Recommendations

6.1 Many different parts of the Senegalese Civil Services are involved in oil product quality control along the supply chain: Customs and Taxation Department, Ministry of Trade, the Ministry of Energy, Ministry of Environment, Ministry of Security (police), Ministry of Justice. All of these agencies are represented in the National Committee for Hydrocarbons, the cooperation and coordination among them to combat malpractice in the sector is insufficient.

6.2 There are no adequate records, if any, of the actions against the malpractice, therefore, it is very difficult to appreciate the level of malpractice going on and the efficiency of any policy to prevent it.

6.3 Very few of the aforementioned agencies have any clear procedure specifically designed to tackle malpractice in the downstream oil sector. Where these procedures are in place, the organizations in charge of implementation lack the necessary human and technical resources to enforce them.

6.4 A penalty system to discourage and penalize malpractice is theoretically in place, but since it is not enforced properly, it is difficult to judge its appropriateness.

6.5 Due to a lack of resources to control the players at this level, it is very difficult to evaluate any potential malpractice at the upper stage of the supply chain (imports, refining, storage, and distribution). At this level, the monitoring system against fuels adulteration is not adapted.

6.6 At the lower stages (export, transportation, and marketing), the malpractice activities are known or suspected. The monitoring system at this level of the supply chain is adapted. However, for a number of combined reasons (lack of resources, lack of coordination and cooperation, corruption, and so forth) the fight against fuels adulteration is not as efficient as possible.

6.7 Because of the lack of proper records, it is very difficult to evaluate the potential loss for the Senegalese authorities of all the malpractice that may occur in the downstream oil sector.

Recommendations

Institutional

1. Commit the local authorities to reducing/eliminating product adulteration
2. Adjust the tax structure to level the retail price of various oil products
3. Strengthen the role and resources of the regulatory agency
4. Recruit experts and train public servants on the oil industry and products
5. Improve cooperation and coordination within CNH and oil companies
6. Communicate to the public to enhance awareness of oil product quality
7. Ensure proper law enforcement

Customs

8. Review and adapt the role of the customs services
9. Build and strengthen the capacities of customs services
10. Post a customs officer or team at the refinery

Technical

11. Set up a test laboratory
12. Put dyes and tracers in “risky” products (industrial diesel and regular gasoline)
13. Improve recordkeeping
14. Adapt glass bends on dispensers

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