

Vehicles in Galapagos¹

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Eight years after the Special Law for Conservation and Sustainable Development in Galapagos was enacted, a law which included language to limit the introduction of vehicles to the Archipelago, indicators of regulation and control of entry of vehicles do not reflect the intended outcomes. Since 1998, the vehicle fleet in Galapagos has increased significantly, especially on the islands of Santa Cruz and San Cristóbal, with the greatest increase occurring in 2001 and 2002.

This rapid growth is an effect of the unplanned and sometimes erratic process of development in Galapagos. The different characteristics of the inhabited islands have resulted in differences in the increase in vehicles. However, all communities show a trend of increasing vehicle numbers in the short term, an increase in fuel demand, and collateral effects related to traffic and air and noise pollution. These effects are especially evident during rush hour in urban areas such as Puerto Ayora on the island of Santa Cruz. Other problems generated by the increase in the number of vehicles are pollution from wastes, spare parts that are not recycled, and increased demand for road maintenance, which in turn requires more intensive quarrying on each island.

INGALA is conducting studies to define indicators to measure vehicle fleet growth trends in the province of Galapagos. This article examines the most significant initial indicators from INGALA's databases, with data collected since 1999, as well as findings from the vehicle census on Isabela (September 2005, updated to November 2006). It also estimates the vehicle population in Galapagos and reviews growth trends both before and after the Special Law was enacted. This information comes from the study entitled "*Situational Analysis of the Growing Vehicle Fleet in Galapagos*"¹, submitted to the INGALA Council in late 2006.

Legal Framework

The Special Law for Galapagos, enacted on 18 March 1998, required that the entry of vehicles to Galapagos be regulated. The Ministry of the Environment, which at that time served as chair of the INGALA Council, was given the responsibility of establishing enforcement measures. Subsequent constitutional reforms named the Governor of Galapagos chair of the INGALA Council, at which time the Governor assumed responsibility for control regulations and procedures.

At present, vehicle entry is subject to the "*Special Regulations to Control Motor Vehicle and Machinery Entry into the Province of Galapagos*", approved by INGALA Council Resolution No. CI-18-I-2005 and published in Official Register No. 09 of 3 May 2005. These regulations established a five-year moratorium on additional permits for public service cooperatives, and on the creation of new land transport cooperatives. This resolution also created the Technical Oversight Committee for Entry of Automotive Vehicles, whose members include the Governor's Office (chair), a representative of the Galapagos National Park Service (GNPS), a representative of the transportation sector, the mayor of each canton, the general manager of INGALA, and a representative of the National Merchant Marine and Directorate for the Coast (DIGMER), the institution responsible for authorizing maritime transport of automotive vehicles to Galapagos.

In 2006 it was estimated that there were 2,051 vehicles in Galapagos, including motorcycles and scooters, 59% of which entered in the last eight years.

Estimate of the vehicle fleet as of 2006

A minimum of 2,051 vehicles were estimated to be in circulation in Galapagos as of 2006 (Table 1). This figure includes pickup trucks, jeeps, buses, vans, motorcycles, scooters, four-wheelers, and large

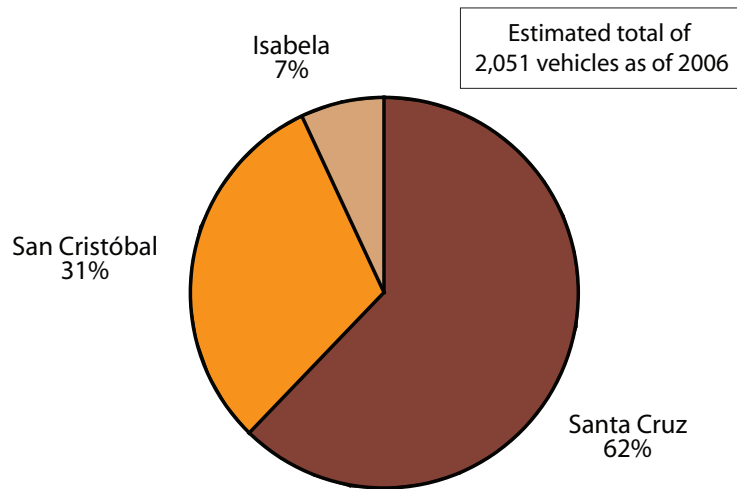
machinery for public projects. According to these estimates, Santa Cruz has 1,276 vehicles (62% of the total), San Cristóbal has 633 (31%), and Isabela 142 (7%) (Fig. 1).

Table 1. Estimated number of vehicle entries into Galapagos, up to and after 1998.

Canton	Up to 1998			After 1998			Total in 2006
	4-wheeled vehicles	Motorcycles	Total	4-wheeled vehicles	Motorcycles	Total	
Santa Cruz	470	134	604	271	401	672	1,276
San Cristóbal	140	54	194	272	167	439	633
Isabela	39	3	42	78	22	100	142
Total	649	191	840	621	590	1,211	2,051

Sources: INGALA databases, estimates by Cárdenas S. 2002², Provincial Transit Authority, Municipal tax rosters, information from the vehicle census on Isabela.

Figure 1. Distribution of the number of vehicles in Galapagos by island, as of 2006



Sources: INGALA databases, estimates by Cárdenas S. 2002², Provincial Transit Authority, Municipal tax rosters, information from the vehicle census on Isabela.

If we analyze the estimated total number of vehicles in Galapagos by vehicle type, there are approximately 1,270 4-wheeled vehicles (62%) and 781 motorcycles and scooters (38%) (Table 1).

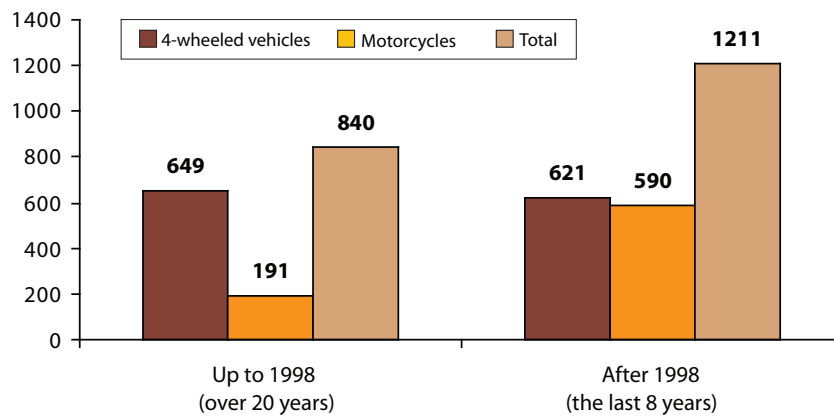
62% of estimated vehicles in Galapagos are in Santa Cruz; 58% of those are four-wheeled.

Growth trends in the vehicle fleet

To assess the effectiveness of control measures, it is important to analyze the number of vehicles that entered Galapagos after 1998, when formal control of vehicle entry began. Data prior to 1999 are incomplete. Also, it is probable that some vehicles entering Galapagos were not registered during the first few years of control implementation. For this study, it was

estimated that before the Special Law went into effect, Galapagos had a total of 840 vehicles. According to INGALA databases, 1,211 vehicles have entered between 1998 and November 2006. Therefore, 59% of the vehicles in Galapagos in 2006 entered during the last eight years (Table 1, Fig. 2).

Figure 2. The Galapagos vehicle fleet up to 1998 and vehicle entries to Galapagos after 1998



Sources: INGALA databases, estimates by Cárdenas S. 2002², Provincial Transit Authority, Municipal tax rosters, information from the automotive census on Isabela.

There has been a sharp rise in the number of vehicles on Santa Cruz, San Cristóbal, and Isabela over the last eight years (Table 2 and Fig. 3). In 2006, Santa Cruz recorded 236 entries authorized by the Vehicle Entry Committee, of which 152 were motorcycles and scooters, 50 were vehicles (pickups, buses, vans, and boats) and

35 were replacement vehicles (see attachment). However, these figures also show a clear decrease in the annual rate of increase in vehicles, from 86% in 2004-05 to 21% in 2005-06, primarily a result of more effective enforcement of regulations.

Table 2. Yearly increase in the number of vehicles in Galapagos, according to entries authorized by INGALA since 1999*.

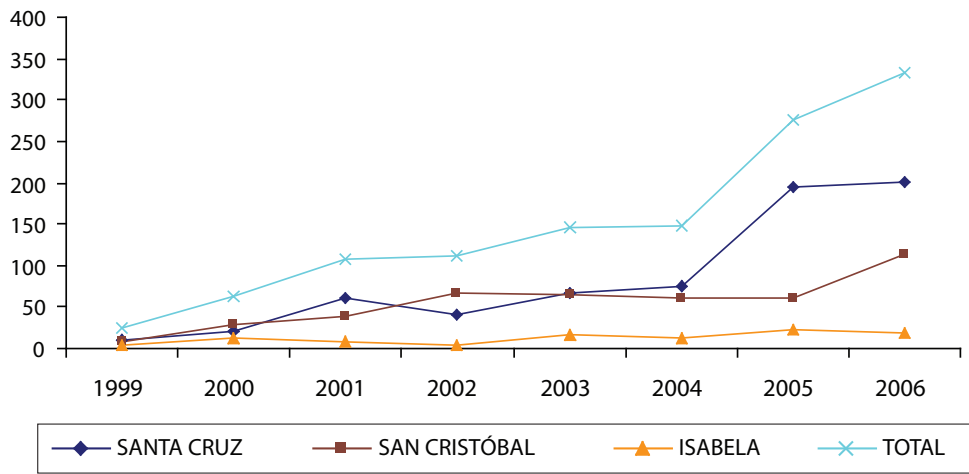
Canton	1999	2000	2001	2002	2003	2004	2005	2006	Total
Santa Cruz	11	21	61	40	66	76	195	202	672
San Cristóbal	9	28	38	66	64	61	60	113	439
Isabela	5	13	8	5	16	12	22	19	100
Total	25	62	107	111	146	149	277	334	1,211

Source: INGALA databases

Note:

* Includes only new vehicle entries, not authorized replacements.

Figure 3. Annual increase in the number of vehicles by canton, 1999-2006



Note:
* Includes only new vehicle entries, not authorized replacements.

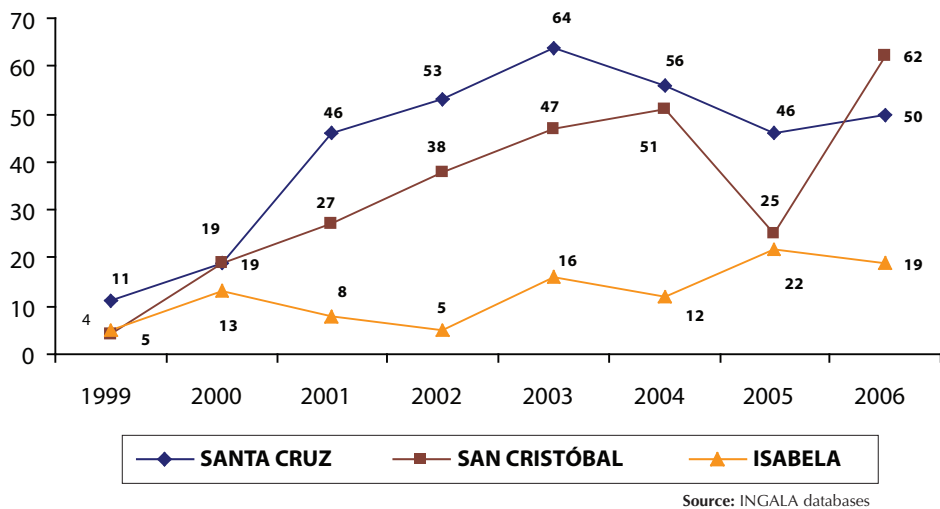
Source: INGALA databases

Resolution No. 008-CI-24-III, approved on 24 March 2004, established a five-year moratorium on the entry of vehicles for public transportation and on the creation of new overland transport companies or cooperatives. This moratorium was ratified in 2005 with approval of the *Special Regulations to Control Entry of Four-Wheeled Motor Vehicles and Machinery into the Province of Galapagos*. Enforcement of these regulations has resulted in a significant decrease in vehicle entries since 2004, with the exception of San Cristóbal, where the entry of 46 large machines and

vehicles for public projects was recorded in 2006. These will be returned to the mainland when the projects (wind power generation infrastructure, airport landing strip, etc.) are completed (Fig. 4).

Motorcycles represented less than 5% of all vehicle entries in 2000, whereas in 2006 their percentage increased to 75%.

Figure 4. Yearly growth in 4-wheeled vehicles and machinery by canton, 1999-2006



Source: INGALA databases

One cause of the excessive increase in vehicles in Santa Cruz in relation to the other islands was the sale in San Cristóbal and Isabela of approximately 20 used vehicles in poor condition that were taken to Santa Cruz, primarily from 2001 to 2003. These used vehicles were then replaced with new ones, which signified replaced vehicles within the province of Galapagos, but an actual increase in the number of vehicles on Santa Cruz.

From 1998 to 2000, motorcycles and scooters represented less than 5% of yearly vehicle entries, whereas from 2001 to 2006, their percentage increased from 10% to 75% (annex).

Case study: vehicle census on Isabela, 2005-2006

In September 2005, a vehicle population census was conducted on the island of Isabela to highlight potential socioeconomic and environmental impacts related

to vehicle fleet growth. Because of the relatively small size of the fleet, it was possible to survey 100% of vehicle owners as well as public officials and public transport and production sector representatives. This data provides an excellent baseline to assess the number of vehicles on Isabela before and after enactment of the Special Law. This census was later updated through November 2006 using information from INGALA databases.

The 2006 update identified 117 4-wheeled vehicles in Isabela. These are heavy- and light-duty vehicles and machinery for public projects (Table 3). An estimated 39 4-wheeled vehicles entered Isabela before 1998 (33% of the current fleet), while 78 (67% of the current fleet) entered from 1999 to November 2006. The census did not include motorcycles; however the number of motorcycles and scooters on Isabela is estimated at 25. The census reports a total of 142 vehicles on Isabela in 2006.

67% of all 4-wheeled vehicles on Isabela have entered since 1999, i.e. 78 vehicles.

Table 3. Overall description of vehicles by activity and date of entry into Isabela.

Type of activity of vehicles	Description of vehicles in the canton of Isabela by economic activity	Vehicle fleet census on Isabela		
		Up to 1998	After 1998	Total on Isabela
Public transportation	"Sierra Negra" Cooperative	8	19	36
	Pre-coop."Piquero Azul"	1	3	
	"Cotranscartin" bus company	2	3	
Productive activities	Agriculture	1	20	50
	Small-scale fishing	1	7	
	Tourism	0	12	
	Commerce	1	2	
	Other	6	0	
Official use (public institutions)	Public institutions (light, heavy-duty and road-making machinery)	39	12	31
Total		39	78	117

Note:

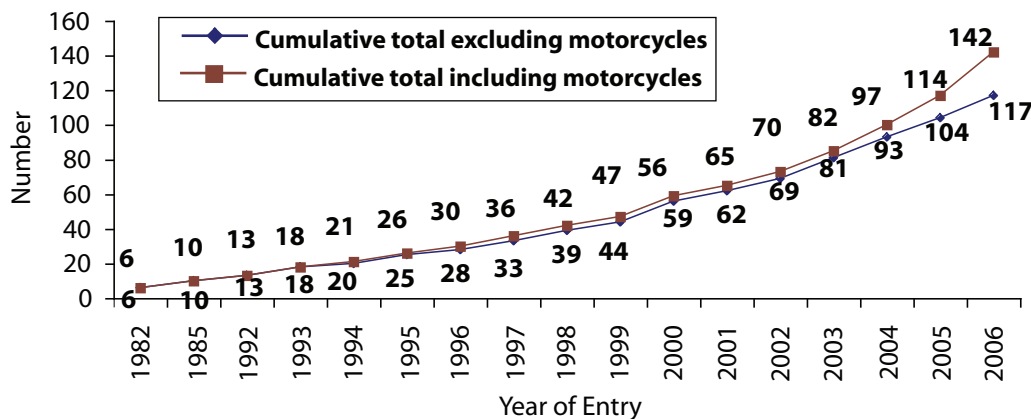
Does not include motorcycles or scooters.

Source: Vehicle census on Isabela, 2005-2006

Figure 5 shows the cumulative vehicle increase on Isabela. Interestingly, before 1998 the annual growth rate in vehicles (excluding motorcycles and scooters)

was 2 vehicles per year. Following the enactment of the Special Law, this number increased to 10 vehicles per year.

Figure 5. Cumulative vehicle increase by year of entry into Isabela

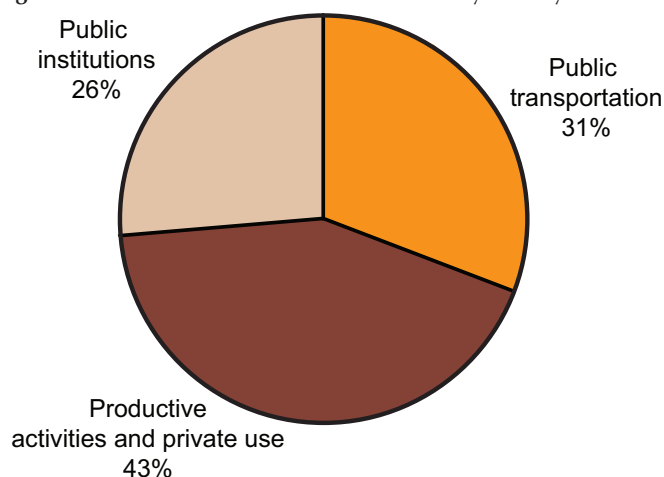


Source: Vehicle census on Isabela, 2005-2006

An analysis of the vehicle fleet on Isabela by activity shows that 31% of the vehicles provide public transportation, 43% are for productive and private use, and 26% for public institutions (Table 3 and Fig. 6). The public transport sector, comprising two cooperatives that use pick-up trucks and one bus company, registered a total of 36 vehicle entries by 2006. Using the

entry authorization census (INGALA databases) for comparison, of the 25 vehicles used for public transport that entered since 1998, only 13 were authorized for such service. That means that 12 of the vehicles registered with cooperatives for public transport service entered Galapagos under authorizations for other economic activities.

Figure 6. Distribution of vehicles on Isabela by activity



Source: Vehicle census on Isabela, 2005-2006

Discussion

It is estimated that there are a total of 2,051 vehicles in Galapagos, with 59% having entered in the last eight years. The majority of all vehicles (62%) are in Santa Cruz. Enforcement of regulations since 2004 has significantly reduced the entry of new 4-wheeled vehicles, especially pickup trucks for public transportation. Consequently, average annual vehicle entry growth rates have dropped for all islands. At the same time, more motorcycles and scooters have entered.

In 2007, public transportation capacity for both passengers and cargo is generally greater than demand. Therefore, it would be useful to analyze future trends in what motivates vehicle entries into the islands.

Based on findings of the vehicle census on Isabela and an analysis of cargo and passengers, the INGALA Council recommended in December 2006 to extend the moratorium on the entry of public transportation vehicles to the island of Isabela and to extend the application of this measure to the entire province of Galapagos. This measure must be applied until suitable socioeconomic and environmental indicators are defined to improve implementation of vehicle entry regulations. It is important to continue with specialized studies to provide a stronger technical foundation for decision-making and to upgrade and evaluate information in relevant databases.

Norms enforced since 2004 have resulted in fewer entries of new 4-wheeled vehicles into Galapagos.

The INGALA Technical Secretariat requires support from the INGALA Council to strengthen its work in the area of vehicle control and to provide more effective technical and legal support to the Vehicle Control Committee. In the short term, a study is planned to provide data on vehicle supply and demand by economic activity. This study will contribute to a comprehensive transportation study for Galapagos that will result in recommendations for public and private transport policies.

The current vehicle entry regulations are too weak. They do not reflect the spirit of the Special Law nor do they provide sound socioeconomic and environmental management for the Province of Galapagos. The current *Regulations to Control Motor Vehicle and Machinery Entry into the Province of Galapagos* must be revised on the basis of sound data and experience. In the short term, it appears that the public service vehicle fleet is the only group that must be increased (with obsolete vehicles replaced as needed), until a real increase in demand for transportation of cargo and passengers is identified and quantified.

Annex. Authorizations for entry of vehicles and machinery into Galapagos, 1999-2006.

SUMMARY: SANTA CRUZ

2006	
TOTAL AUTHORIZED ENTRIES	236
REPLACEMENTS	35
MOTORCYCLES	152
4-WHEELED VEHICLES	50
NEW ENTRIES	202
2005	
TOTAL AUTHORIZED ENTRIES	269
REPLACEMENTS	43
MACHINERY	31
MOTORCYCLES	149
4-WHEELED VEHICLES	46
NEW ENTRIES	195
2004	
TOTAL AUTHORIZED ENTRIES	128
REPLACEMENTS	52
MOTORCYCLES	20
4-WHEELED VEHICLES	56
NEW ENTRIES	76
2003	
TOTAL AUTHORIZED ENTRIES	122
REPLACEMENTS	56
MOTORCYCLES	2
4-WHEELED VEHICLES	64
NEW ENTRIES	66
2002	
TOTAL AUTHORIZED ENTRIES	84
REPLACEMENTS	44
MOTORCYCLES	2
4-WHEELED VEHICLES	38
NEW ENTRIES	40
2001	
TOTAL AUTHORIZED ENTRIES	109
REPLACEMENTS	48
MOTORCYCLES	15
4-WHEELED VEHICLES	46
NEW ENTRIES	61
2000	
TOTAL AUTHORIZED ENTRIES	53
REPLACEMENTS	33
MOTORCYCLES	2
4-WHEELED VEHICLES	19
NEW ENTRIES	21
1999	
TOTAL AUTHORIZED ENTRIES	33
REPLACEMENTS	22
MOTORCYCLES	0
4-WHEELED VEHICLES	11
NEW ENTRIES	11

SUMMARY: SAN CRISTÓBAL

2006	
TOTAL AUTHORIZED ENTRIES	125
REPLACEMENTS	12
MOTORCYCLES	51
4-WHEELED VEHICLES	62
NEW ENTRIES	113
2005	
TOTAL AUTHORIZED ENTRIES	74
REPLACEMENTS	14
MOTORCYCLES	35
4-WHEELED VEHICLES	25
NEW ENTRIES	60
2004	
TOTAL AUTHORIZED ENTRIES	74
REPLACEMENTS	13
MOTORCYCLES	10
4-WHEELED VEHICLES	51
NEW ENTRIES	61
2003	
TOTAL AUTHORIZED ENTRIES	77
REPLACEMENTS	13
MACHINERY	9
MOTORCYCLES	8
4-WHEELED VEHICLES	47
NEW ENTRIES	64
2002	
TOTAL AUTHORIZED ENTRIES	75
REPLACEMENTS	9
MOTORCYCLES	13
4-WHEELED VEHICLES	53
NEW ENTRIES	66
2001	
TOTAL AUTHORIZED ENTRIES	44
REPLACEMENTS	6
MOTORCYCLES	11
4-WHEELED VEHICLES	27
NEW ENTRIES	38
2000	
TOTAL AUTHORIZED ENTRIES	41
REPLACEMENTS	13
MOTORCYCLES	9
4-WHEELED VEHICLES	19
NEW ENTRIES	28
1999	
TOTAL AUTHORIZED ENTRIES	13
REPLACEMENTS	4
MOTORCYCLES	5
4-WHEELED VEHICLES	4
NEW ENTRIES	9

SUMMARY: ISABELA

2006	
TOTAL AUTHORIZED ENTRIES	19
REPLACEMENTS	0
MOTORCYCLES	12
4-WHEELED VEHICLES	7
NEW ENTRIES	19
2005	
TOTAL AUTHORIZED ENTRIES	24
REPLACEMENTS	2
MOTORCYCLES	6
4-WHEELED VEHICLES	16
NEW ENTRIES	22
2004	
TOTAL AUTHORIZED ENTRIES	12
REPLACEMENTS	0
MOTORCYCLES	0
4-WHEELED VEHICLES	12
NEW ENTRIES	12
2003	
TOTAL AUTHORIZED ENTRIES	16
REPLACEMENTS	0
MOTORCYCLES	0
4-WHEELED VEHICLES	16
NEW ENTRIES	16
2002	
TOTAL AUTHORIZED ENTRIES	7
REPLACEMENTS	2
MOTORCYCLES	0
4-WHEELED VEHICLES	5
NEW ENTRIES	5
2001	
TOTAL AUTHORIZED ENTRIES	8
REPLACEMENTS	0
MOTORCYCLES	0
4-WHEELED VEHICLES	8
NEW ENTRIES	8
2000	
TOTAL AUTHORIZED ENTRIES	31
REPLACEMENTS	0
MOTORCYCLES	0
4-WHEELED VEHICLES	13
NEW ENTRIES	13
1999	
TOTAL AUTHORIZED ENTRIES	6
REPLACEMENTS	1
MOTORCYCLES	0
4-WHEELED VEHICLES	5
NEW ENTRIES	5

Source: INGALA databases

Note:

Motorcycles include motorcycles and scooters.