

on peak basis. The annual average water demand is estimated at 883.6 l/s by assuming the average water demand as 70% of the peak one. This additional future water demand is distributed for Pampa and upstream valley areas as shown below.

	Nos. of Applications	Requested Water (l/s)	
		(Peak)	(Average)
Pampa	23	1,252.3	876.6
Upstream Valley	1	10.0	7.0
	24	1,262.3	883.6

The existing and future average mining water demands in the years 1992 and 2015 are summarized as follows.

	(unit : l/s)	
	Existing (1992)	Future (2015)
Pampa	35.0	911.6
Upstream Valley	34.2	41.2
Total	69.2	952.8

### 7.2.3 Real Water Consumption

With the increasing use of the groundwater of the Pampa del Tamarugal, it will be necessary to increase recycling and improve waste disposal methods in order to minimize the contamination of the groundwater resource. In the absence of information on future waste disposal methods, it is assumed that approximately 60% of the wastewater will be either evaporated or diverted outside of the basin, and that the remaining 40% will be returned to the basin. The large percentage of water returned to the basin emphasizes the importance of reducing the losses in process water and the contaminants in wastewater discharges.

The existing and future real water consumption in the years 1992 and 2015 are estimated as follows.

	(unit : l/s)	
	Existing (1992)	Future (2015)
Pampa	23.0 *	549.0 **
Upstream Valley	20.5	24.7
Total	43.5	573.7

Note \* :  $30 \text{ l/s} \times 0.6 + 5.0 \text{ l/s} = 23.0 \text{ l/s}$   
 \*\* :  $906.6 \text{ l/s} \times 0.6 + 5.0 \text{ l/s} = 549.0 \text{ l/s}$

**Table C.7.1 Existing Legally Authorized Mining Water Rights/Usage in Pampa del Tamarugal**  
 <Derechos Legalmente Autorizados/Usos de Agua para Minería en la Pampa del Tamarugal>

Map No.	Proprietor	No. of Water Right	Now in use	Water Source	Water Use	Quantity (l/s)	Exist. Use (l/s)*	Future Use (l/s)*	Comments	Remarks (Location)
(14)	Boraton Quim.Proc.Ltda.	NR-1-3-370	No	G	MI	6.00			Plant Closed	Canchones
(29)	H. Bussinger Cajas	T-1-4-2-001	Yes	G	MI	5.00	5.00	5.00	ACF Minera	Of. Victoria
(30)	Luis Papić Dominguez	T-1-2-2-026	No	G	MI	6.00				Of. Dolores
(31)	Luis Papić Dominguez	T-1-2-2-027	No	G	MI	4.00				Huara
(33)	Soquimich S.A.	T-1-4-2-066	No	G	MI	30.00				Of. Victoria
(34)	Soquimich S.A.	T-1-4-2-067	No	G	MI	6.00				Of. Victoria
(35)	Soquimich	T-1-4-2-068	No	G	MI	3.60				Of. Victoria
(36)	Soquimich S.A.	T-1-4-2-069	No	G	MI	5.00				Of. Victoria
(37)	Petromin Ltda.	ND-1-3-060	No	G	MI	10.00			Cosayach	Pozo Almonte
(38)	Petromin Ltda.	ND-1-3-061	No	G	MI	10.00			Cosayach	Pozo Almonte
(39)	Soquimich S.A.	ND-1-3-062	No	G	MI	0.74				Of. Victoria
(40)	Soquimich S.A.	ND-1-3-80	No	G	MI	4.76				Of. Victoria
(41)	Soquimich S.A.	ND-1-3-191	No	G	MI	3.10				Of. Victoria
(43)	Cia. Mnera Chilbras	ND-1-3-261	No	G	MI	70.00				Of. Victoria
(44)	Soc. Salitrera Renacer	ND-1-3-277	Yes	G	MI	27.00	30.00	23.00	Mapocho	Huara
(45)	Minera Challacollo	ND-1-3-307	No	G	MI	1.80	0.00	1.80		Of. Victoria
	Total					193.00	35.00	29.80		

\* Estimates based on Interviews

Note: Water Source; G: Groundwater, S: Spring Water, R: River Water  
 Water Use; A: Agricultural, MI: Mining, D: Domestic

Table C7.2 Applications for Mining Water Right in Pampa del Tamarugal Basin  
<Solicitudes de Derechos de Agua para Minería en Pampa del Tamarugal>

Map #	Applicant	Application	Water Source		Water Use	Quantity (l/s)	Remarks (Location)	Yield (l/s)	
			Source	Use				Verified	Estimated
(1)	Indo Andia Lusa	T-1-4-2-020	G	MI	MI	157.0	Pozo Almonte	-	60.0
(2)	Soquimich S.A.	T-1-4-2-059	G	MI	MI	78.0	Oficina Victoria	21.9	-
(3)	Soquimich S.A.	ND-1-3-029	G	MI	MI	10.0	Salar de Pintados	0.8	-
(4)	Soquimich S.A.	ND-1-3-041	G	MI	MI	30.0	Pozo Almonte	0.3	-
(5)	Soquimich S.A.	ND-1-3-044	G	MI	MI	20.0	Pozo Almonte	0.7	-
(6)	Soquimich S.A.	ND-1-3-057	G	MI	MI	20.0	Pozo Almonte	5.4	-
(7)	Soquimich S.A.	ND-1-3-058	G	MI	MI	30.0	Pozo Almonte	1.5	-
(8)	Cominor	ND-1-3-079	R	MI	MI	10.0	Qb. Yarvicoya	5.0	-
(9)	Soquimich S.A.	ND-1-3-086	G	MI	MI	25.0	Pozo Almonte	12.5	-
(10)	Soquimich S.A.	ND-1-3-087	G	MI	MI	30.0	Pozo Almonte	4.2	-
(13)	Serv. Topograficos y Geo.	ND-1-3-096	G	MI	MI	280.0	Pozo Almonte	23.8	-
(18)	Cosayach	ND-1-3-145	G	MI	MI	20.0	Huara	-	20.0
(23)	Peter Mufeler	ND-1-3-184	G	MI	MI	100.0	Pozo Almonte	-	60.0
(25)	Cosayach	ND-1-3-213	G	MI	MI	20.0	Pozo Almonte	1.0	-
(27)	Merck Quimica Ltda.	ND-1-3-216	G	MI	MI	0.7	Huara	0.7	-
(29)	Comite Agrop. Y Forestal	ND-1-3-222	S	MI	MI	85.0	Qb. Aroma	-	0.0
(30)	Soquimich S.A.	ND-1-3-225	G	MI	MI	20.0	Oficina Victoria	11.1	-
(32)	Merck Quimica Chilena	ND-1-3-227	G	MI	MI	10.8	Huara	10.8	-
(36)	Soquimich S.A.	ND-1-3-233	G	MI	MI	20.0	Oficina Victoria	7.1	-
(38)	Mario Revoco Pena	ND-1-3-260	G	MI	MI	355.0	Between Tirana + Pica	159.3	-
(42)	Marcos Beovic Vranicic	ND-1-3-269	R	MI	MI	100.0	Qb. Tarapaca?	-	0.0
(43)	Lincoyan Diaz Miranda	ND-1-3-273	G	MI	MI	20.0	Pozo Almonte	0.6	-
(46)	Merck Quimica Chilena	ND-1-3-278	G	MI	MI	228.0	Huara	22.8	-
(48)	Julian Nina Vega	ND-1-3-291	G	MI	MI	15.0	Oficina Victoria	-	5.0
(51)	Inversiones Junin S.A.	ND-1-3-294	G	MI	MI	15.0	Huara	-	5.0
(53)	Merck Quimica Chilena	ND-1-3-296	G	MI	MI	18.5	Huara	-	18.5

**Table C7.2 Applications for Mining Water Right in Pampa del Tamarugal Basin**  
*<Solicitudes de Derechos de Agua para Minería en Pampa del Tamarugal>*

Map #	Applicant	No. of Application	Water Source	Water Use	Quantity (l/s)	Remarks (Location)	Verified Yield (l/s)	Estimated Yield (l/s)
(55)	Luis Pápic Ramos	ND-1-3-308	G	MI	3.3	Huara	3.3	-
(56)	Raul Pizarro Araya	ND-1-3-310	G	MI	30.0	Salár de Pintados	-	5.0
(57)	Cia. Salitrera Sta. Rosa	ND-1-3-311	G	MI	2.0	Huara	-	2.0
(58)	Cia. Salitrera Sta. Rosa	ND-1-3-312	G	MI	1.5	Huara	-	1.5
(59)	Merck Química Chilena	ND-1-3-313	G	MI	20.0	Huara	20.0	-
(60)	Soquimich S.A.	ND-1-3-314	G	MI	10.0	Pozo Almonte	0.4	-
(61)	Mining Industrial Investment	ND-1-3-320	G	MI	2.0	Pozo Almonte	-	2.0
(62)	Luis Castillo Carvajal	ND-1-3-323	G	MI	10.0	Oficina Dolores	-	2.0
(63)	Luis Castillo Carvajal	ND-1-3-324	G	MI	10.0	Oficina Dolores	-	2.0
(64)	Luis Castillo Carvajal	ND-1-3-327	G	MI	10.0	Pozo Almonte	-	1.0
(65)	Luis Castillo Carvajal	ND-1-3-328	G	MI	10.0	Oficina Dolores	-	2.0
(66)	Luis Castillo Carvajal	ND-1-3-329	G	MI	10.0	Oficina Dolores	-	2.0
(67)	Luis Castillo Carvajal	ND-1-3-334	G	MI	10.0	Oficina Dolores	-	2.0
(68)	Luis Castillo Carvajal	ND-1-3-335	G	MI	10.0	Pozo Almonte	-	1.0
(69)	Luis Castillo Carvajal	ND-1-3-336	G	MI	10.0	Pozo Almonte	-	1.0
(70)	Luis Castillo Carvajal	ND-1-3-337	G	MI	10.0	Pozo Almonte	-	1.0
(71)	Luis Castillo Carvajal	ND-1-3-338	G	MI	10.0	Pozo Almonte	-	1.0
(72)	Luis Castillo Carvajal	ND-1-3-339	G	MI	10.0	Pozo Almonte	-	1.0
(73)	Luis Castillo Carvajal	ND-1-3-340	G	MI	10.0	Pozo Almonte	-	1.0
(74)	Luis Castillo Carvajal	ND-1-3-341	G	MI	10.0	Oficina Dolores	-	2.0
(75)	Soquimich S.A.	ND-1-3-342	G	MI	35.0	Pica	-	10.0
(77)	Oswaldo Fuentes Flores	ND-1-3-344	G	MI	40.0	Qb. Aroma	-	0.0
(78)	Oscar Andia Leon	ND-1-3-347	G	MI	10.0	Pozo Almonte	-	5.0
(80)	Daniel Gamboa de los S	ND-1-3-362	G	MI	50.0	Pozo Almonte	-	30.0
(84)	Cia. Fruticola San Carlos	ND-1-3-377	G	MI	4.1	Pica	-	3.0
(85)	Luis Urruticoechea F.	ND-1-3-382	G	MI	5.5	Oficina Victoria	4.8	-

Table C7.2 Applications for Mining Water Right in Pampa del Tamarugal Basin  
<Solicitudes de Derechos de Agua para Minería en Pampa del Tamarugal>

Map #	Applicant	No. of Application	Water Source	Water Use	Quantity (l/s)	Remarks (Location)	Verified Yield (l/s)	Estimated Yield (l/s)
(86)	Luis Urruticochea E.	ND-1-3-383	G	MI	6.0	Oficina Victoria	6.0	-
(87)	Luis Urruticochea E.	ND-1-3-385	G	MI	10.0	Oficina Victoria	0.6	-
(89)	Luis Perez Martinez	ND-1-3-391	G	MI	20.0	Pozo Almonte	-	5.0
(90)	Luis Perez Martinez	ND-1-3-392	G	MI	20.0	Pozo Almonte	-	5.0
(97)	Soquimich S.A.	ND-1-3-454	G	MI	10.0	Oficina Victoria	-	5.0
(99)	Minera Cerro Colorado	ND-1-3-460	R	MI	12.0	Qb.Parca	-	10.0
(100)	Minera Cerro Colorado	ND-1-3-461	S	MI	12.0	Mamina	-	10.0
(103)	Gian Razato Saavedra	ND-1-3-472	G	MI	3.0	Pica	-	2.0
(104)	Soquimich S.A.	ND-1-3-474	G	MI	60.0	Pozo Almonte	-	20.0
(105)	Soquimich S.A.	ND-1-3-477	G	MI	300.0	Oficina Victoria	-	100.0
(106)	Soquimich S.A.	ND-1-3-478	G	MI	700.0	Oficina Victoria	-	140.0
(108)	Soc. Minera Junin Irda.	ND-1-3-484	G	MI	1.3	Oficina Dolores	-	1.3
(109)	Isidoro Andia Luza	ND-1-3-485	G	MI	700.0	Oficina Victoria	-	140.0
(114)	Soquimich S.A.	ND-1-3-188	R	MI	230.0	Qb.Aroma	-	0.0
(115)	Soquimich S.A.	ND-1-3-282	G	MI	25.0	Qb.Tarapaca	-	0.0
					4,170.7		324.5	684.3

Data Source : DGA

Note : Water Source : R: River Water S: Spring Water

Water Use : A: Agricultural MI: Mining T: Tourism

Appendix C.1. Existing Legally Authorized Water Rights in Arica City Area and Azapa Valley.  
(Derechos de Agua Existente, Legalmente Autorizados en el Area de la Ciudad de Arica y Valle de Azapa)

Propietor	No. of Water Right	Water Source	Water Use	Quantity (l/s)	Remark
(1) Maria J. Gutierrez Valdes	MA-1-4	G	A	20.0	
(2) Cooperatica Agricola Sobraya	T-2-7-4-002	G	I	50.0	
(3) Manuel Madrid Aguirre	NR-1-1-1	G	A	12.0	
(4) Alicia Faundes Testa	NR-1-1-28	G	A	40.0	
(5) Comandancia VI Division de Ejercito	NR-1-1-34	G	D	35.0	
(6) Aldo Lombardi Lombardi	NR-1-1-37	S	A	50.0	
(7) Raul E. Lombardi	NR-1-1-38	S	A	100.0	
(8) Aldo Lombardi Lombardi	NR-1-1-39	S	A	100.0	
(9) Raul Lombardi Lombardi	NR-1-1-40	G	A	33.0	
(10) Aldo Lombardi Lombardi	NR-1-1-41	G	A	45.0	
(11) Pascual Roco Caceres	NR-1-1-47	G	A	45.0	
(12) Ortuno Nieto Ltda, Cia.	NR-1-1-50	G	A	45.0	
(13) Carlos Mozo Weguelin	NR-1-1-53	G	A	30.0	
(14) Aldo Elena/Carlos Lombardi	NR-1-1-54	G	A	15.0	
(15) Carlos Gomez a./Otros	NR-1-1-55	G	A	40.0	
(16) Miroslav Gardilic Bock	NR-1-1-56	G	A	40.0	
(17) Carlos Buneder Jorrat	NR-1-1-57	G	A	35.0	
(18) Maria Soledad Paris O.	NR-1-1-68	G	A	20.0	
(19) Mario I. Chang Alvarado	NR-1-1-70	G	A	1.5	
(20) Manuel Cabrera Saavedra	NR-1-1-72	G	A	3 30.0	
(21) Manuel Cabrera Saavedra	NR-1-1-77	G	A	5.0	
(23) Embotelladora Arica, S.A.I.C.	M-1-45	G	I	15.0	
(24) Sendos I Region (ESSAT)	M-1-98	G	M	230.0	
(25) Sendos I Region (ESSAT)	M-1-99	G	M	183.0	
(26) Eva Nancy Defilippis S.	M-1-114	G	A	23.0	
(27) Sendos I Region (ESSAT)	ND-1-14	G	M	30.0	
(28) Aldeas Infantiles S.O.S.	ND-1-1-13	G	D	5.0	
(29) Raul Castro Letelier	ND-1-1-19	G	A	1.25	
(30) Marco Antonio Aguirre Bonilla	ND-1-1-60	G	D	1.1	
(31) ESSAT S.A.	ND-1-1-65	G	M	20.0	
<b>Total</b>				<b>1,607.15</b>	

Data Source : DGA

Note : (1) Water Source; G: Groundwater; S: Spring Water; R: River Water  
(2) Water Use ; A: Agricultural; D: Domestic; M: Municipal.  
I : Industrial,  
(3) Azapa Valley: Azapa Canal Intake-Arica City.

Appendix C.2. Existing Customary Water Rights in Arica City Area and Azapa Valley.  
(Derechos de Agua Existente de Costumbre en el Area de la Ciudad de Arica y Valle de Azapa)

Propietor	Water Source	Water Use	Quantity (l/s)	Remarks
(1) Aldo Lombardi, Miroslav Gardilic/ Youssiff Bon Artur	R	A	400.0	Las Maitas Canal Intake
(2) Rhyna Blamey Rojas	G	A	8.0	
(3) Rhyna Blamez Rojas	G	A	15.0	
(4) Rosa Lanchipa Acha	G	A	4.0	
(5) Gian Luigi Canepa Capellino	G	A	1.0	
(6) Enrique Dvorquez F.	G	A	0.27	
(7) Jose Andia Ticona	G	I	8.0	
(8) Bartolome Stagnaro Moya	G	A	2.5	
(9) Raul Castro Letelier	G	I	1.0	
(10) Miguel Ortuno Nieto	G	I	23.0	
(11) Luis Olivares Limare	G	I	10.0	
(12) Youssef Nader Bon Artium Maraum	G	A	7.0	
(13) Miguel Nader Bu Antun Karky/Otros	G	A	5.0	
(14) Eid Khalil Kharrat B.	G	A	12.0	
<b>Total</b>			<b>496.77</b>	
(15) Azapa Canal	R	A	(Accion)	Azapa Canal Intake.
Bocatoma			2.00	
Surire			73.00	
Ticnamar-Belen			42.50	
La Cruz			44.00	
Camina			81.50	
Hijos de Livicar			80.00	
Livicar			69.00	
18 de Septiembre			72.00	
Sobraya Norte			75.70	
Sobraya Sur			96.88	
Cerro Blanco			292.00	
Cabuza			79.10	
Santa Irene Sur			33.10	
Santa Irene Norte			138.85	<1>
Cerro Moreno			267.20	
San Miguel			44.93	
Las Riveras			123.97	<2>
Alto Ramirez Sur			84.00	
Las Maitas			1.40	
Cerro Sombrero			102.36	
Pago de Gomez Norte			255.77	
Pago de Gomez Sur			312.14	
<b>Total</b>			<b>2,437.90</b>	

Data Source : DGA

Note: Water Source; R: River Water, G: Groundwater

Water Use; A: Agricultural, I: Industry

Accion; Special unit of water right.

<1 : Including Chuval irrigation area (18.7 Shares).

<2 : Including Serafina Lombardi irrigation area (6.00 Shares) and Manuel Madrid irrigation area (7.00 Shares).

Appendix C.3 Existing Legally Authorized and Customary Water Rights in Lower Lluta Valley.

< Derechos de Agua Existentes , Legalmente Autorizados y de Costumbre en las extensiones inferiores del Río Lluta >

Propietor	No. of Water Right	Water Source	Water Use	Quantity (l/s), (Acc.)	Remarks
<b>I. Legally Authorized Water Right</b>					
(1) Alfredo Ramirez Pizarro	NR-I-1-10	R	A	249.0 l/s	
(2) Comunidad Vilca-Loredo	NR-I-1-61	R	A	35.5 l/s	
(3) Donal Erskine Molina	NR-I-1-87	G	A	0.25 l/s	
(4) Lluta Irrigation Upstream Sector		R	A	197.80 (Acc.)	
Vilacollo I				5.28	
Vilacollo II				5.01	
Iqueta Norte				3.00	
Vinto Sur				2.82	
Vinto Norte				17.33	
Cata				2.92	
Buena Vista				3.96	
Anca Collo				1.25	
Huacharaque				1.85	
Arancha				17.38	
Millune				7.00	
Saucine				1.00	
Challallapo				16.61	
Tinare				5.50	
La Palma				9.79	
Zora				14.28	
Cala Cala				11.19	
Chaquire				13.56	
Tauquia				8.82	
Chapisca Norte				3.70	
Chapisca Oriente				4.73	
Giron				1.0	
Chapisca Sur				9.74	
Vila Vila				3.97	
Tocontasi				18.49	
Vila Vila Dos				0.62	
Irenio Quispe				7.00	
(5) Lluta Irrigation Sector I		R	A	371.65 (Acc.)	
Molinos				193.05	
Chatiapo				17.34	
Humire				3.76	
Quispe				1.00	
Bocanegra				81.00	
El Tambo				41.50	
Almonte				13.00	
Santa Ines				21.00	
(6) Lluta Irrigation Sector II		R	A	289.45 (Acc.)	
Rojas Maraboli				18.50	
Alfonso Bolanos				9.00	
Vilca Loredo				--	Legally Auth. (NR-I-1-61)
Loredo				21.00	
Vilca Chang				37.00	
Bolanos Villanueva				8.00	



Appendix C.3 Existing Legally Authorized and Customary Water Rights in Lower Lluta Valley. (Page 2 of 2)

Proprietor	No. of Water Right	Water Source	Water Use	Quantity (l/s), (Acc.)	Remarks
Ponce				7.00	
Ramos				28.05	
Santa Raquel				77.50	
San Pablo				1.00	
Flore				9.00	
Punta de Rieles				5.24	
El Pichin				2.50	
Aguataya				65.66	
(7) Lluta Irrigation Sector III		R	A	539.45 (Acc.)	
Kesler				4.70	
La Isla				22.40	
Huanca				7.08	
Puro Chile				65.90	
Linderos				23.90	
Poconchile				83.80	
Garcia				5.00	
Barranco Santa Rosa				19.00	
Mayorga				20.30	
La Palma Uno				23.00	
Huancarane				48.87	
La Palma Dos				36.00	
Visconti				119.50	
Kesler Gil				60.00	
(8) Lluta Irrigation Sector IV		R	A	1,168.47 (Acc.)	
Arellano Beyzan				20.00	
Cora Beyzan				97.18	
El Muro				211.08	
Alanoca				26.60	
Chacabuco				342.62	
Dominguez				7.50	
Sascapa				423.49	
Bravo Uno				25.00	
Bravo Dos				15.00	
(9) Lluta Irrigation Sector V		R	A	163.02 (Acc.)	
Valle Hermoso				--	Legally Auth. (NR-I-1-10)
Aica Gonzalez				30.00	
M. Beovic				8.00	
Bomba Puente Chacalluta				5.00	
Ambrosio Flores				2.00	
Bellet				32.00	
Beneficiencia				39.19	
Santa Rosa				46.83	
Total				284.75 l/s + 2,729.84 Acc.	

II. Custom Water Right

(1) Rosa del Carmen Araya Baricich G A 10.0 (l/s)

Data Source: DGA and Asociacion Regantes de Lluta.

Note: Water Source; R: River Water, G: Groundwater  
Water Use; A: Agricultural

Appendix C.4. Existing Legally Authorized Water Rights in Pampa del Tamarugal Basin

<Derechos de Agua Existente Legalmente Autorizado en la Cuenca de la Pampa del Tamarugal>

Map No.	Proprietor	No. of Water Right	Now in use	Water Source	Water Use	Quantity (l/s)	Remarks (Location)
(1)	Wenceslao Carlos Alvarez	T-1-5-4-062	Yes	S	A	1.50	Pica
(2)	Comunidad de Chiapa	NR-1-3-005	Yes	R	A	30.00	Qb.Aroma (Chiapa)
(3)	Comunidad de Chiapa	NR-1-3-18	Yes	R	A	30.00	Qd. Aroma (Chiapa)
(4)	Comunidad de Chiapa	NR-1-3-19	Yes	R	A	30.00	Qd. Aroma (Chiapa)
(5)	Ivo Ugrinovic Filipic	NR-1-3-83	Yes	S	A	6.00	Pica
(6)	Remigio Esteban Chambe	NR-1-3-101	Yes	R	A	1.50	QB.Tarapaca (Huarcaza)
(7)	Soc.Exp./Com.Agric.Ugr	NR-1-3-147	Yes	S	A	8.00	Pica
(8)	Pedro Cisterna/Otros	NR-1-3-210	Yes	S	A	55.00	Pica
(9)	Osvaldo Fuentes Flores	NR-1-3-235	Yes	S	A	30.00	Qb. Aroma (Chiapa)
(10)	Sendos I Region (ESSAT)	NR-1-1-298	Yes	G	M	22.50 *	Oficina Dolores
(11)	Sendos I Region (ESSAT)	NR-1-3-299	Yes	S	M	75.00 *	Pica
(12)	Sendos I Region (ESSAT)	NR-1-3-300	Yes	S	M	24.00 *	Pica
(13)	Julian Garcia Baltazar	NR-1-3-319	Yes	G	A	30.00	Qb. Aroma (Chiapa)
(14)	Boraton Quim.Proc.Ltda.	NR-1-3-370	No	G	MI	6.00	Canchones
(15)	Deleted						Same as #7
(16)	Wenceslao Carlos Alvarez	NR-1-3-387	Yes	G	A	1.50	Pica
(17)	M.Cervellino Ragone	NR-1-3-405	Yes	G	A	2.00	Pica
(18)	G.Cervellino Giannoni	NR-1-3-406	Yes	G	A	4.20	Betw.Tirana/Matilla
(19)	Suc.Albornoz Salazar	NR-1-3-419	Yes	S	A	10.00	Qb. Aroma (Chiapa)
(20)	Ser.Bien.Carabin.Mamina	NR-1-3-428	Yes	R	D	0.02	Qb. Mamina (Mamina)
(21)	A.Ticuna Chapalla	NR-1-3-429	Yes	S	A	2.00	Qb. Yarbicoya (Upstream)
(22)	A.Contreras C./Otros	NR-1-3-439	Yes	S	A	1.50	Pica
(23)	Agric. de Macaya	NR-1-3-447	Yes	S	A	7.00	Qb.Macaya (Macaya)
(24)	F. Lasala Sciarafia	NR-1-3-452	Yes	G	A	6.00	Pica
(25)	Angel Medina Luza	NR-1-3-453	Yes	G	A	2.50	Pica
(26)	Saturonio Lupa Lupa	NR-1-3-466	Yes	S	A	0.50	Qb. Tarap. (Molinos)
(27)	M. Miranda Vasquez	NR-1-3-491	No	R	A	0.08	Qb. Mamina (Mamina)
(28)	M. Miranda Vasquez	NR-1-3-492	Yes	R	A	0.08	Qb. Mamina (Mamina)
(29)	H. Bussinger Cajas **	T-1-4-2-001	Yes	G	MI	5.00	Of. Victoria
(30)	Luis Papic Dominguez	T-1-2-2-026	No	G	MI	6.00	Of. Dolores
(31)	Luis Papic Dominguez	T-1-2-2-027	No	G	MI	4.00	Huara
(32)	Embotella. Arica	T-1-2-4-050	Yes	G	I	0.10	Qb.Mamina (Mamina)
(33)	Soquimich S.A.	T-1-4-2-066	No	G	MI	30.00	Of. Victoria
(34)	Soquimich S.A.	T-1-4-2-067	No	G	MI	6.00	Of. Victoria
(35)	Soquimich	T-1-4-2-068	No	G	MI	3.60	Of. Victoria

Appendix C.4. Existing Legally Authorized Water Rights in Pampa del Tamarugal Basin  
 <Derechos de Agua Existente Legalmente Autorizado en la Cuenca de la Pampa del Tamarugal>

Map No.	Proprietor	No. of Water Right	Now in use	Water Source	Water Use	Quantity (l/s)	Remarks (Location)
(36)	Soquimich S.A.	T-1-4-2-069	No	G	MI	5.00	Of. Victoria
(37)	Petromin Ltda.	ND-1-3-060	Yes	G	MI	10.00	Pozo Almonte
(38)	Petromin Ltda.	ND-1-3-061	Yes	G	MI	10.00	Pozo Almonte
(39)	Soquimich S.A.	ND-1-3-062	No	G	MI	0.74	Of. Victoria
(40)	Soquimich S.A.	ND-1-3-80	No	G	MI	4.76	Of. Victoria
(41)	Soquimich S.A.	ND-1-3-191	No	G	MI	3.10	Of. Victoria
(42)	Sendos I Region (ESSAT)	ND-1-3-209	Yes	G	M	835.00 *	Canchones
(43)	Cia. Mnera Chilbras	ND-1-3-261	No	G	MI	70.00	Of. Victoria
(44)	Soc. Salitrea Renacer	ND-1-3-277	Yes	G	MI	27.00	Huara
(45)	Minera Challacollo	ND-1-3-307	Yes	G	MI	1.80	Of. Victoria
(46)	Agric./Agroin.Esmeralda	ND-1-3-346	Yes	G	A	85.50	Pica
(47)	Margarita Cayo Mamani	T-1-2-4-021	Yes	S	A	20.00	Qb. Aroma (Chiapa)
(48)	A.Contreras/T.Barrios	NR-1-3-373	Yes	S	A	9.20	Pica
(49)	Julio Ticuna Flores	NR-1-3-442	No	S	A	7.50	Qb.Cascaya Upstream
TOTAL						1,531.18	

Data Source D.G.A.

Note: Water Source; G: Groundwater, S: Spring Water, R: River Water  
 Water Use; A: Agricultural, MI: Mining, D: Domestic

\* Amounts according to request for regularization - in court being adjudicated

\*\* Now in use by A.C.F. Minera

Appendix C.5. Existing Custom Water Right in Pampa del Tamarugal Basin  
 <Derechos de Agua Existentes de Costumbre en la Cuenca de la Pampa del Tamarugal>

Map No.	Proprietor	No. of Water Right	Now in use	Water Source	Water Use	Quantity (l/s)	Remarks (Location)
(1)	Now Legalized	-					Same as #18, Ap. C.4
(2)	Suc. Albornoz Salazar	-	Yes	S	A	10.00	Qb. Aroma (Chiapa)
(3)	Agric. de Macaya	-	Yes	S	MI	7.00	Qb. Macaya (Macaya)
(4)	Cosme F. Lusa Lema	-	Yes	G	A	1.50	Pica
(5)	Elías Pauca Baltazar	-	Yes	R	MI	30.00	Qb. Aroma (Chiapa)
(6)	Lidia Olazabal Perez	-	Yes	S	A	0.80	Pica
(7)	Manuel Miranda Vásquez	-	Yes	S	A	0.88	Qb. Mamina (Mamina)
(8)	Ejército de Chile	-	Yes	G	D	120.00	Pozo Almonte
	<b>Total</b>					170.18	

Notes:

1. Above water rights do not include those in the Qb. Tarapaca and Qb Quipisca
2. Water Source; G: Groundwater, S: Spring Water, R: River Water  
 Water Use; A: Agricultural, MI: Mining, D: Domestic

Data Source D.G.A.

Appendix C.6 Application for Water Right in Pampa del Tamarugal Basin

<Solicitudes de Derechos de Agua en Pampa del Tamarugal>

Applicant	No. of Application	Water Source	Water Use	Quantity (Us)	Remarks (Location)	Verified Yield (Us)	Estimated Yield (Us)	Comments
(1)Indo Andia Lusa	T-1-4-2-020	G	MI	157.0	Pozo Almonite	-	60.0	
(2)Soquimich S.A.	T-1-4-2-059	G	MI	78.0	Oficina Victoria	21.9	-	
(3)Soquimich S.A.	ND-1-3-029	G	MI	10.0	Salar de Pintados	0.8	-	
(4)Soquimich S.A.	ND-1-3-041	G	MI	30.0	Pozo Almonite	0.3	-	
(5)Soquimich S.A.	ND-1-3-044	G	MI	20.0	Pozo Almonite	0.7	-	
(6)Soquimich S.A.	ND-1-3-057	G	MI	20.0	Pozo Almonite	5.4	-	
(7)Soquimich S.A.	ND-1-3-058	G	MI	30.0	Pozo Almonite	1.5	-	
(8)Cominor	ND-1-3-079	R	MI	10.0	Qb. Yarvicoya	5.0	-	
(9)Soquimich S.A.	ND-1-3-086	G	MI	25.0	Pozo Almonite	12.5	-	
(10)Soquimich S.A.	ND-1-3-087	G	MI	30.0	Pozo Almonite	4.2	-	
(11)Soc. Com. Colectiva Moscoso, C	ND-1-3-090	R	A	7.8	Qb. Tarapaca (Chusmisa)	7.8	-	
(12)Comite Agric. Qbda. de T.	ND-1-3-091	S	A	30.0	Huara	-	10.0	
(13)Serv. Topograficos y Geo.	ND-1-3-096	G	MI	280.0	Qb. Aroma	23.8	-	
(14)Soc. Agric. La Tierra Prometida	ND-1-3-098	S	A	170.0	Qb. Aroma	-	170.0	
(15)Sergio Vica Letelier	ND-1-3-100	S	A	1.5	Pica	0.3	-	
(16)Asoc. Gremial de Productores	ND-1-3-110	S	A	70.0	Qb. Aroma	-	30.0	
(17)Antonio Napoli Pardo	ND-1-3-113	G	A	2.0	Pica	0.6	-	
(18)Cosayach	ND-1-3-145	G	MI	20.0	Huara	-	20.0	
(19)Comite Agrop. y Forestal	ND-1-3-148	S.R.	A	85.0	Qb. Aroma	-	0.0	
(20)Carlos Corvalan Barreda	ND-1-3-149	G	A	3.0	Pica	-	1.3	
(21)Valentin Mamani Choque	ND-1-3-160	R.S.	A	40.0	Qb. Aroma	-	0.0	
(22)Soc. Agropec. Tierra de Esfuerzo	ND-1-3-162	R	A	85.0	Qb. Aroma	-	-	
(23)Peter Mufeler	ND-1-3-184	G	MI	100.0	Pozo Almonite	-	60.0	
(24)Asoc. Gremial Agrop. Pampa	ND-1-3-206	R	A	280.0	Qb. Aroma	-	0.0	
(25)Cosayach	ND-1-3-213	G	MI	20.0	Pozo Almonite	1.0	-	
(26)Soc. Agro. El Progreso	ND-1-3-214	R	A	100.0	Huara	-	0.0	
(27)Merck Quimica Ltda.	ND-1-3-216	G	MI	0.7	Huara	0.7	-	
(28)Hector Flores Mamani	ND-1-3-221	G	A	25.0	Pozo Almonite	-	5.0	
(29)Comite Agrop. Y Forestal	ND-1-3-222	S	MI	85.0	Qb. Aroma	-	0.0	
(30)Soquimich S.A.	ND-1-3-225	G	MI	20.0	Oficina Victoria	11.1	-	
(31)Gloria Delucchi A.	ND-1-3-226	G	A	3.0	Pica	-	1.5	
(32)Merck Quimica Chilena	ND-1-3-227	G	MI	10.8	Huara	10.8	-	
(33)Fermin Alvarez Ayavire	ND-1-3-228	G	A	2.5	Pica	2.5	-	

Appendix C.6 Application for Water Right in Pampa del Tamarugal Basin  
 <Solicitudes de Derechos de Agua en Pampa del Tamarugal>

Applicant	No. of Application	Water Source	Water Use	Water Quantity (l/s)	Remarks (Location)	Verified Yield (l/s)	Estimated Yield (l/s)	Comments
(34)Caja Compensacion Los	ND-1-3-230	G	T	10.0	Between Tirana + Pica	-	5.0	
(35)Hernan Condore S.Y Otros	ND-1-3-231	R	A	60.0	Qb.Tarapaca	-	30.0	
(36)Soquimich S.A.	ND-1-3-233	G	MI	20.0	Oficina Victoria	7.1	-	
(37)Francisco Vilca Quispe	ND-1-3-234	G	A	1.5	Pica	-	1.0	
(38)Mario Reveco Pena	ND-1-3-260	G	MI	355.0	Between Tirana + Pica	159.3	-	
(39)Cesare Rossi Bancho	ND-1-3-264	G	A	3.0	Pica	-	0.5	
(40)Carlos Vega Diaz	ND-1-3-265	G	A	7.0	Pica	-	1.0	
(41)Marcos Beovic Vranicic	ND-1-3-268	R	A	200.0	Huara	-	0.0	
(42)Marcos Beovic Vranicic	ND-1-3-269	R	MI	100.0	Qb.Tarapaca?	-	0.0	
(43)Lincuyan Diaz Miranda	ND-1-3-273	G	MI	20.0	Pozo Almonte	0.6	-	
(44)Hipolito Flores Carlos	ND-1-3-274	G	A	1.0	Pica	-	1.0	
(45)Bonifacio Caceres Roque	ND-1-3-275	S	A	15.0	Qb. Aroma	-	10.0	
(46)Merck Quimica Chilena	ND-1-3-278	G	MI	228.0	Huara	22.8	-	
(47)Italo de Gregori Torre	ND-1-3-283	G	A	2.0	Pica	-	0.5	
(48)Julian Nina Vega	ND-1-3-291	G	MI	15.0	Oficina Victoria	-	5.0	
(49)Cardleon	ND-1-3-292	G	A	5.0	Pica	-	1.5	
(50)Cardleon	ND-1-3-293	G	A	3.5	Pica	-	1.0	
(51)Inversiones Junin S.A.	ND-1-3-294	G	MI	15.0	Huara	-	5.0	
(52)Ala No.4 Fach-Iquique	ND-1-3-295	S	T	10.0	Pica	-	5.0	
(53)Merck Quimica Chilena	ND-1-3-296	G	MI	18.5	Huara	-	18.5	
(54)Vicente Challapa Mamani	ND-1-3-302	S	A	30.0	Mamina	-	0.5	
(55)Luis Papis Ramos	ND-1-3-308	G	MI	3.3	Huara	3.3	-	
(56)Raul Pizarro Araya	ND-1-3-310	G	MI	30.0	Salar de Pintados	-	5.0	
(57)Cia.Salitrera Sta. Rosa	ND-1-3-311	G	MI	2.0	Huara	-	2.0	
(58)Cia.Salitrera Sta. Rosa	ND-1-3-312	G	MI	1.5	Huara	-	1.5	
(59)Merck Quimica Chilena	ND-1-3-313	G	MI	20.0	Huara	20.0	-	
(60)Soquimich S.A.	ND-1-3-314	G	MI	10.0	Pozo Almonte	0.4	-	
(61)Mining Industrial Investment	ND-1-3-320	G	MI	2.0	Pozo Almonte	-	2.0	
(62)Luis Castillo Carvajal	ND-1-3-323	G	MI	10.0	Oficina Dolores	-	2.0	
(63)Luis Castillo Carvajal	ND-1-3-324	G	MI	10.0	Oficina Dolores	-	2.0	
(64)Luis Castillo Carvajal	ND-1-3-327	G	MI	10.0	Pozo Almonte	-	1.0	
(65)Luis Castillo Carvajal	ND-1-3-328	G	MI	10.0	Oficina Dolores	-	2.0	
(66)Luis Castillo Carvajal	ND-1-3-329	G	MI	10.0	Oficina Dolores	-	2.0	

Appendix C.6 Application for Water Right in Pampa del Tamarugal Basin

<Solicitudes de Derechos de Agua en Pampa del Tamarugal>

Applicant	No. of Application	Water Source	Water Use	Quantity (l/s)	Remarks (Location)	Verified Yield (l/s)	Estimated Yield (l/s)	Comments
(67)Luis Castillo Carvajal	ND-1-3-334	G	MI	10.0	Oficina Dolores	-	2.0	
(68)Luis Castillo Carvajal	ND-1-3-335	G	MI	10.0	Pozo Almonte	-	1.0	
(69)Luis Castillo Carvajal	ND-1-3-336	G	MI	10.0	Pozo Almonte	-	1.0	
(70)Luis Castillo Carvajal	ND-1-3-337	G	MI	10.0	Pozo Almonte	-	1.0	
(71)Luis Castillo Carvajal	ND-1-3-338	G	MI	10.0	Pozo Almonte	-	1.0	
(72)Luis Castillo Carvajal	ND-1-3-339	G	MI	10.0	Pozo Almonte	-	1.0	
(73)Luis Castillo Carvajal	ND-1-3-340	G	MI	10.0	Pozo Almonte	-	1.0	
(74)Luis Castillo Carvajal	ND-1-3-341	G	MI	10.0	Oficina Dolores	-	2.0	
(75)Soquimich S.A.	ND-1-3-342	G	MI	35.0	Pica	-	10.0	
(76)Maria Baez Jimenez	ND-1-3-343	G	A	2.5	Pica	-	1.0	
(77)Osvaldo Fuentes Flores	ND-1-3-344	G	MI	40.0	Qb. Aroma	-	0.0	
(78)Oscar Andia Leon	ND-1-3-347	G	MI	10.0	Pozo Almonte	-	5.0	
(79)Maria Barreda Diaz	ND-1-3-350	G	A	14.0	Pica	-	6.0	
(80)Daniel Gamboa de los S	ND-1-3-362	G	MI	50.0	Pozo Almonte	-	30.0	
(81)CONAF	ND-1-3-368	G	A	9.9	Huara	-	9.9	
(82)Theimo Barrios H.	ND-1-3-374	G	A	1.0	Pica	-	1.0	
(83)Cia. Fruiticola San Carlos	ND-1-3-376	G	A	3.2	Pica	-	2.0	
(84)Cia. Fruiticola San Carlos	ND-1-3-377	G	MI	4.1	Pica	-	3.0	
(85)Luis Urruicochea F.	ND-1-3-382	G	MI	5.5	Oficina Victoria	4.8	-	
(86)Luis Urruicochea E.	ND-1-3-383	G	MI	6.0	Oficina Victoria	6.0	-	
(87)Luis Urruicochea E.	ND-1-3-385	G	MI	10.0	Oficina Victoria	0.6	-	
(88)Juan G. Perez Taucare	ND-1-3-391	R	A	105.5	Qb.Tarapaca	-	-	Application Denied
(89)Luis Perez Martinez	ND-1-3-391	G	MI	20.0	Pozo Almonte	-	5.0	
(90)Luis Perez Martinez	ND-1-3-392	G	MI	20.0	Pozo Almonte	-	5.0	
(91)Ricardo Encina Recabarr	ND-1-3-417	G	A	4.0	Pozo Almonte	-	2.0	
(92)Alvaro Arbulo Barrientos	ND-1-3-422	G	A	80.0	Pica	-	5.0	
(93)Luiggi de Gregori Henriquez	ND-1-3-424	G	A	4.0	Pica	3.0	-	
(94)Asoc.Gremial Agric. Maulla	ND-1-3-426	S	A	24.0	Pica	-	24.0	
(95)Mannel Flores Cepeda Y Otros	ND-1-3-446	G	A	1.0	Pica	-	1.0	
(96)Com.de aguas Kochecos	ND-1-3-449	G	A	7.0	Pica	-	5.0	
(97)Soquimich S.A.	ND-1-3-454	G	MI	10.0	Oficina Victoria	-	5.0	
(98)Donato Grimaldi Feliu	ND-1-3-458	G	A	6.0	Pica	-	4.0	
(99)Minera Cerro Colorado	ND-1-3-460	R	MI	12.0	Qb.Parca	-	10.0	

**Appendix C.6 Application for Water Right in Pampa del Tamarugal Basin**  
 <Solicitudes de Derechos de Agua en Pampa del Tamarugal>

Applicant	No. of Application	Water Source	Water Use	Quantity (Vs)	Remarks (Location)	Verified Yield (Vs)	Estimated Yield (Vs)	Comments
(100)Minera Cerro Colorado	ND-1-3-461	S	MI	12.0	Mamina	-	10.0	
(101)CAPPTA	ND-1-3-464	R,S	A	100.0	Huara	-	0.0	
(102)Luigi de Gregori H.	ND-1-3-470	G	A	8.0	Pica	6.0	-	
(103)Gian Razato Saavedra	ND-1-3-472	G	MI	3.0	Pica	-	2.0	
(104)Soquimich S.A.	ND-1-3-474	G	MI	60.0	Pozo Almonte	-	20.0	
(105)Soquimich S.A.	ND-1-3-477	G	MI	300.0	Oficina Victoria	-	100.0	
(106)Soquimich S.A.	ND-1-3-478	G	MI	700.0	Oficina Victoria	-	140.0	
(107)Ejercicio de Chile	ND-1-3-481	G	D	6.0	Pozo Almonte	-	6.0	
(108)Soc. Minera Junin Ltda.	ND-1-3-484	G	MI	1.3	Oficina Dolores	-	1.3	
(109)Isidoro Andia Luza	ND-1-3-485	G	MI	700.0	Oficina Victoria	-	140.0	
(110)Manuel Ticuna Mamani	ND-1-3-488	G	A	200.0	Between Tirana + Pica	-	100.0	
(111)Jose Cabrera Henriquez	ND-1-3-489	G	A	3.0	Between Tirana + Pica	-	1.0	
(112)ESSAT S.A.	ND-1-3-494	G	M	80.0	Between Tirana + Pica	-	80.0	
(113)ESSAT S.A.	ND-1-3-495	G	M	320.0	Between Tirana + Pica	-	320.0	
(114)Soquimich S.A.	ND-1-3-188	R	MI	230.0	Qb.Aroma	-	0.0	
(115)Soquimich S.A.	ND-1-3-282	G	MI	25.0	Qb.Tarapaca	-	0.0	
(116)Sergio Mege Maturana	ND-1-3-309	G	A	2.0	Between Tirana + Pica	-	1.0	
(117)Usuarios Sector Ipla	ND-1-3-430	S	A	4.0	Mamina	-	-	
<b>TOTAL</b>				<b>6,408.6</b>		<b>344.7</b>	<b>1,528.0</b>	

Data Source: DGA

Note: Water Source; G: Groundwater R: River Water S: Spring Water  
 Water Use; A: Agricultural MI: Municipal D: Domestic MI: Mining T: Tourism



1997