ICOMOS Netherlands

Proceedings of the ICLAFI – ICUCH Symposium

The UNESCO Convention on the Protection of Underwater Cultural Heritage: how do we make it work?

29th June – 1st July 2017
Cultural Heritage Agency of the Netherlands

Amersfoort, The Netherlands

Cultural Heritage Agency
Ministry of Education, Culture and Science

Analysis and diagnosis of how the right of damage acts in the theory of legal order that leads to the study of software: Heritage coefficient, which is inserted within the methodology of economic valorization underwater heritage

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Introduction

The Convention for the Protection of Underwater Cultural Heritage was developed by UNESCO member countries, where it was established that archaeological remains cannot be commercialized, since this is incompatible with conservation. When it was decided, it was ratified by only 18 countries. At that time, only two more countries were needed for entry into force. In 2001 Argentina voted in favor and it was ratified in 2009 under national law No. 26,556.

The Convention for the Protection of Underwater Cultural Heritage established that "heritage found in seas, lakes and rivers cannot be the object of any commercial purchase, sale or transaction, as this is against its effective protection". This is what the archaeologists of different official organisms --CONICET Argentina, Agency CyTA-Institute Leloir, Program of Underwater Archeology (PROAS), National Institute of Anthropology and Latin American Thought (INAPL) have said.

The Convention encourages international cooperation. In an interview with archaeologist Dolores Elkin, she said: "Let us not forget that in the case of sunken ships, which constitute a large part of the underwater cultural heritage, the place of origin and the place of the shipwreck rarely coincide, so the best way of protecting that heritage is through the joint work of the various stakeholders". To this thought a hypothetical idea was added: the pieces that a sunken ship carried may be from the same country from where it set sailor from another country where it was docking. This creates more complexity to the subject if we add the waters of the country where the shipwreck occurred or where it was found. Each country has its own legal regime. Each heritage piece has its own identity. Each piece of property has its own economic valorization which leads to its own financial system.

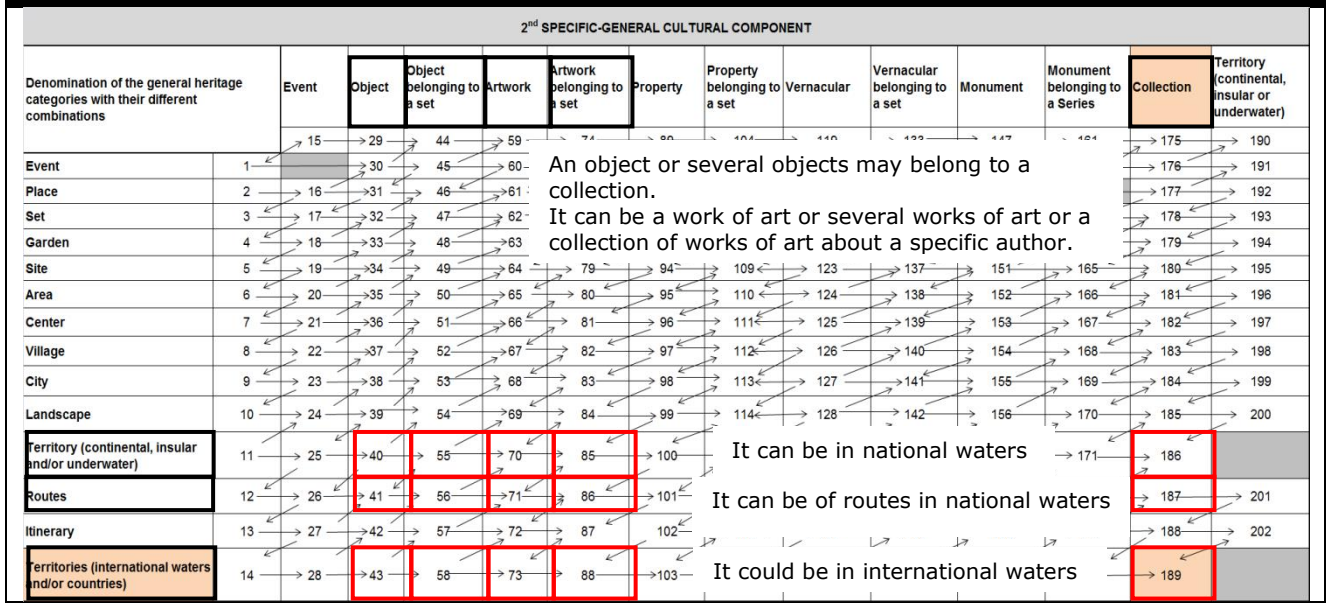
Theoretical basis

In order to solve this problem the economic valuation methodology, developed for heritage in general, can also be applied to underwater cultural heritage. The objects should be valued and assessed and then they turn to be part of the financial market under the legal figure of trust. After being registered they turn to be part of a fund of heritage economic investment.

The methodology is composed of a system of concatenated tables. A total of 170 and tend to infinity. In this case, only 17 tables were used. You can work in each table independently. The tables are related to the structure and legal order of each country. This corresponds to what is called Heritage Coefficient that can be extended as necessary. Each score that is obtained is based on the heritage value of the object that is valued in the place where it was extracted and therefore in the country where it was found. For this hypothetical case four countries are involved:

The country from which the objects come,

Object/s and/or artwork/s that come from a 3rd country or "n" countries



Object/s and/or artwork/s that come from a 3rd country or "n" countries

SCALE	2nd SPECIFIC-GENERAL CULTURAL COMPONENT													
(1/63)	1	15												
(2/63)	2		29											
(3/63)		16												
(4/63)	3		30											
(5/63)				44										
(6/63)				45										
(7/63)			31		59									
(8/63)		17												
(9/63)	4													
(10/63)		18												
(11/63)	5		32		60									
(12/63)		19		46		74								
(13/63)	6		33											
(14/63)		20		47		75								
(15/63)	7		34		61		89							
(16/63)		21		48			90							
(17/63)	8		35		62	76		104						
(18/63)								105						
(19/63)		22		49			91		119					
(20/63)	9		36		63	77			120					
(21/63)		23		50			92	106		133				
(22/63)	10		37		64	78				134				
(23/63)		24		51			93	107	121		147			
(24/63)	11		38		65	79					148			
(25/63)		25										161		
(26/63)	12													
(27/63)			39	52			94	108	122					
A) (28/63)		26	40	53	66	80				135				
(29/63)							95	109	123			162		
(30/63)	13			54	66	81				136			175	
(31/63)		27					96	110	124		149		176	
(32/63)											150		177	190
(33/63)	14				68	82				137		163		191
(34/63)		28					97	111	125					192
B) (35/63)			41	55						138	151			
(36/63)					69	83						164		
(37/63)			42				98	112	126				178	
C) (38/63)			43	56						139	152			193
D) (39/63)				57	70	84						165	179	
(40/63)							99	113	127					194
E) (41/63)				58	71	85				140				
(42/63)							100	114	128		153			
(43/63)												166	180	
(44/63)														195
F) (45/63)					72	86				141	154			
(46/63)							101	115	129			167	181	
G) (47/63)					73	87				142				196
(48/63)							102	116	130		155			
H) (49/63)						88				143	156	168	182	
(50/63)														197
(51/63)							103	117	131		157	169	183	
(52/63)														198
(53/63)								118	132	144		170	184	
(54/63)											158			199
(55/63)										145		171	185	
(56/63)										146				200
(57/63)											159			
I) (58/63)											160	172	186	
J) (59/63)												173	187	
(60/63)														201
(61/63)													188	
(62/63)												174		
K) (63/63)													189	202

The objects coming from a 3rd country or "n" countries should be quantified

The value of the sunken vessel must be quantified according to Heritage Coefficient

$$CP_P = 100\left\{\frac{1}{11}\left(\frac{C^{C}_{2_b}(x)}{63}\right)\right\} + 2$$

E) Set of objects – International waters	$CP_p = 100\left\{\frac{1}{11}\left(\frac{41}{63}\right)\right\} + 2$	$CP_p = 7.8$
H) Set of artworks – International waters	$CP_p = 100\left\{\frac{1}{11}\left(\frac{49}{63}\right)\right\} + 2$	$CP_p = 9$
K) Collection – International waters	$CP_p = 100\left\{\frac{1}{11}\left(\frac{63}{63}\right)\right\} + 2$	$CP_p = 11$

The country where the ship comes from,

Flotsam/s=(2nd country) in the discovered place

2nd SPECIFIC-GENERAL CULTURAL COMPONENT

Denomination of the general heritage categories with their different combinations	Event	Object	Object belonging to a set	Artwork	Artwork belonging to a set	Property	Property belonging to a set	Vernacular	Vernacular belonging to a set	Monument	Monument belonging to a Series	Collection	Territory (continental, insular or underwater)
Event	1	15	29	44	59	74	89	104	119	133	147	161	175	190
Place	2	16	30	45	60	75	90	105						191
Set	3	17	31	46	61	76	91	106						192
Garden	4	18	32	47	62	77	92	107						193
Site	5	19	33	48	63	78	93	108						194
Area	6	20	34	49	64	79	94	109						195
Center	7	21	35	50	65	80	95	110						196
Village	8	22	36	51	66	81	96	111						197
City	9	23	37	52	67	82	97	112	126	140	154	168	183	198
Landscape	10	24	38	53	68	83	98	113	127	141	155	169	184	199
Territory (continental, insular and/or underwater)	11	25	39	54	69	84	99	114	128	142	156	170	185	200
Routes	12	26	40	55	70	85	100	115	129	143	157	171	186	
Itinerary	13	27	41	56	71	86	101	116	130	144	158	172	187	201
Territories (international waters and/or countries)	14	28	42	57	72	87	102	117	131	145	159	173	188	202
			43	58	73	88	103	118	132	146	160	174	189	

The flotsam is a property. The sea, river or lake is a property. The flotsam can be found in national territory or international territory or in a new or old commercial route.

Flotsam/s=(2nd country) in the discovered place

SCALE	2nd SPECIFIC-GENERAL CULTURAL COMPONENT													
(1/63)	1	15												
(2/63)	2		29											
(3/63)		16												
(4/63)	3		30											
(5/63)				44										
(6/63)				45										
(7/63)			31		59									
(8/63)		17												
(9/63)	4													
(10/63)		18												
(11/63)	5		32		60									
(12/63)		19		46		74								
(13/63)	6		33											
(14/63)		20		47		75								
(15/63)	7		34		61		89							
(16/63)		21		48			90							
(17/63)	8		35		62	76		104						
(18/63)								105						
(19/63)		22		49			91		119					
(20/63)	9		36		63	77			120					
(21/63)		23		50			92	106		133				
(22/63)	10		37		64	78				134				
(23/63)		24		51			93	107	121		147			
(24/63)	11		38		65	79					148			
(25/63)		25										161		
(26/63)	12													
(27/63)			39	52			94	108	122					
(28/63)		26	40	53	66	80				135				
(29/63)							95	109	123			162		
(30/63)	13			54	66	81				136			175	
(31/63)		27					96	110	124		149		176	
(32/63)											150		177	190
(33/63)	14				68	82				137		163		191
(34/63)		28					97	111	125					192
(35/63)			41	55						138	151			
(36/63)					69	83						164		
(37/63)			42				98	112	126				178	
(38/63)			43	56						139	152			193
(39/63)				57	70	84						165	179	
(40/63)							99	113	127					194
(41/63)				58	71	85				140				
A) (42/63)							100	114	128		153			
(43/63)												166	180	
(44/63)														195
(45/63)					72	86				141	154			
B) (46/63)							101	115	129			167	181	
(47/63)					73	87				142				196
C) (48/63)							102	116	130		155			
(49/63)						88				143	156	168	182	
(50/63)														197
D) (51/63)							103	117	131		157	169	183	
(52/63)														198
E) (53/63)								118	132	144		170	184	
(54/63)											158			199
(55/63)										145		171	185	
(56/63)										146				200
(57/63)											159			
(58/63)											160	172	186	
(59/63)												173	187	
(60/63)														201
(61/63)													188	
(62/63)												174		
(63/63)													189	202

The flotsam should be quantified =
(2nd Country) discovered place

The value of the flotsam must be quantified according to Heritage Coefficient

$$CP_p = 100\left\{\frac{1}{11}\left(\frac{C^{C}_{2_b}(x)}{63}\right)\right\} + 2\,\P$$

A)	In national waters – the value of the property	$CP_p = 100\left\{\frac{1}{11}\left(\frac{42}{63}\right)\right\} + 2$	$CP_p = 8$
B)	In national waters – The value of a set of properties and / or commercial routes - the value of the property	$CP_p = 100\left\{\frac{1}{11}\left(\frac{46}{63}\right)\right\} + 2$	$CP_p = 8.5$
C)	In commercial routes - the value of a set of properties	$CP_p = 100\left\{\frac{1}{11}\left(\frac{48}{63}\right)\right\} + 2$	$CP_p = 8.8$
D)	In international waters – The value of the property	$CP_p = 100\left\{\frac{1}{11}\left(\frac{51}{63}\right)\right\} + 2$	$CP_p = 9.2$
E)	In international waters – the value of a set of properties	$CP_p = 100\left\{\frac{1}{11}\left(\frac{53}{63}\right)\right\} + 2$	$CP_p = 9.5$

The country where the ship sunk and where it was found

Event = (1st country) discovered place

2nd SPECIFIC-GENERAL CULTURAL COMPONENT

Denomination of the general heritage categories with their different combinations		Event	Object	Object belonging to a set	Artwork	Artwork belonging to a set	Property	Property belonging to a set	Vernacular	Vernacular belonging to a set	Monument	Monument belonging to a Series	Collection	Territory (continental, insular or underwater)
Event	1	15	29	44	59	74	89	104	119	133	147	161	175	190
Place	2	16	30	45	60	75	90	105	120	134	148	162	176	191
Set	3	17	31	46	61	76	91	106	121	135	149	163	177	192
Garden	4	18	32	47	62	77	92	107	122	136	150	164	178	193
Site	5	19	33	48	63	78	93	108	123	137	151	165	179	194
Area	6	20	34	49	64	79	94	109	124	138	152	166	180	195
Center	7	21	35	50	65	80	95	110	125	139	153	167	181	196
Village	8	22	36	51	66	81	96	111	126	140	154	168	182	197
City	9	23	37	52	67	82	97	112	127	141	155	169	183	198
Landscape	10	24	38	53	68	83	98	113	128	142	156	170	184	199
Territory (continental, insular and/or underwater)	11	25	39	54	69	84	99	114	129	143	157	171	185	200
Routes	12	26	40	55	70	85	100	115	130	144	158	172	186	201
Itinerary	13	27	41	56	71	86	101	116	131	145	159	173	187	202
Territories (international waters and/or countries)	14	28	42	57	72	87	102	117	132	146	160	174	188	203

The shipwreck is an event, discovered by divers, in a casual way or because of an investigation purposely

It could be in national

It may be on a new or old trade route, ar or conquest in national

It could be in international waters.

Event = (1st Country) Discovered place

SCALE	2nd SPECIFIC-GENERAL CULTURAL COMPONENT													
(1/63)	1	15												
(2/63)	2		29											
(3/63)		16												
(4/63)	3		30											
(5/63)				44										
(6/63)				45										
(7/63)			31		59									
(8/63)		17												
(9/63)	4													
(10/63)		18												
(11/63)	5		32		60									
(12/63)		19		46		74								
(13/63)	6		33											
(14/63)		20		47		75								
(15/63)	7		34		61		89							
(16/63)		21		48			90							
(17/63)	8		35		62	76		104						
(18/63)								105						
(19/63)		22		49			91		119					
(20/63)	9		36		63	77			120					
(21/63)		23		50			92	106		133				
(22/63)	10		37		64	78				134				
(23/63)		24		51			93	107	121		147			
(24/63)	11		38		65	79					148			
A) (25/63)		25										161		
(26/63)	12													
(27/63)			39	52			94	108	122					
B) (28/63)		26	40	53	66	80				135				
(29/63)							95	109	123			162		
(30/63)	13			54	66	81				136			175	
(31/63)		27					96	110	124		149		176	
(32/63)											150		177	190
(33/63)	14				68	82				137		163		191
C) (34/63)		28					97	111	125					192
(35/63)			41	55						138	151			
(36/63)					69	83						164		
(37/63)			42				98	112	126				178	
(38/63)			43	56						139	152			193
(39/63)				57	70	84						165	179	
(40/63)							99	113	127					194
(41/63)				58	71	85				140				
(42/63)							100	114	128		153			
(43/63)												166	180	
(44/63)														195
(45/63)					72	86				141	154			
(46/63)							101	115	129			167	181	
(47/63)					73	87				142				196
(48/63)							102	116	130		155			
(49/63)						88				143	156	168	182	
(50/63)														197
(51/63)							103	117	131		157	169	183	
(52/63)														198
(53/63)								118	132	144		170	184	
(54/63)											158			199
(55/63)										145		171	185	
(56/63)										146				200
(57/63)											159			
(58/63)											160	172	186	
(59/63)												173	187	
(60/63)														201
(61/63)													188	
(62/63)												174		
(63/63)													189	202

The event should be quantified = (1st country) discovered place

The value of the event should be quantified according to Heritage Cofficient

$$CP_p = 100\left\{\frac{1}{11}\left(\frac{C^C_{2_b}(x)}{63}\right)\right\} + 2$$

A) National waters

$$CP_p = 100\left\{\frac{1}{11}\left(\frac{25}{63}\right)\right\} + 2$$

$$CP_p = 100\{0.09\ x\ 0.39\} + 2$$
$$CP_p = 100 * 0.035 + 2$$
$$CP_p = 3.54 + 2$$
$$CP_p = 5.54$$

B) Comercial route (old or new)

$$CP_p = 100\left\{\frac{1}{11}\left(\frac{28}{63}\right)\right\} + 2$$

$$CP_p = 100\ \{0.09\ x\ 0.44\} + 2$$
$$CP_p = 100 * 0.04 + 2$$
$$CP_p = 4.00 + 2$$
$$CP_p = 6$$

C) International waters

$$CP_p = 100\left\{\frac{1}{11}\left(\frac{34}{63}\right)\right\} + 2$$

$$CP_p = 100\ \{0.09\ x\ 0.53\} + 2$$
$$CP_p = 100 * 0.048 + 2$$
$$CP_p = 4.85 + 2$$
$$CP_p = 6.85$$

They are the resources that must be taken into account to value the underwater cultural heritage.

In order to determine the heritage economic valuation, the first table of the Heritage Coefficient (jurisdiction and norm system) of each involved country must be set up. As an example, the table in Argentina on the subject, underwater cultural heritage and its normative and thematic scope will be presented.

On the other hand, it is necessary to take into account the different domain states, which can be presented in Argentina:

- The legal declaration of underwater heritage of the rescued pieces (they are of precarious domain) and as they are declared they are registered
- Ship domain that can be of a private enterprise or of the State private
- The sites, when they are legally declared turned to be registered (they are of precarious domain).The sites where the pieces were found may belong to different domain states:
    - international domain beyond 200 miles in offshore waters;
    - domain of the State, maritime waters within 200 miles;
    - domain of individuals when the course of water passes through a domain of a private person.

This domain hierarchy brings with it different types of legal problems. The Argentine jurisprudence through the document presented by Luis Gustavo Losada on the "misappropriation of treasures and archaeological and paleontological goods" where in

item III "the discovery of treasures in jurisdictional waters" denotes that the occasional discovery of cultural property in such waters has a specific legal regime.

In the first place, it should be noted that the sea, river or lake is a real estate, included among the public goods of the State. Boats that moor on the coasts of the seas or rivers of the Republic, their fragments and the objects of their cargo are considered among private property of the State. In the last case such goods are not susceptible of private appropriation, as they are cultural goods.

Treasures discovered in jurisdictional waters belong exclusively to the party State. It should also be remembered that law 23968 on the establishment of maritime spaces establishes the country's full sovereignty over airspace, sea bed and subsoil. An exclusive economic zone is assigned for the purposes of exploration, exploitation, conservation and management of the living and non-living natural resources of the waters overlying the seabed and other activities for exploration and economic extraction of the area. In this area, the Nation exercises all its fiscal and jurisdictional powers, preventive and repressive, in matters of taxation, customs, health, exchange and immigration.

This does not mean that the State cannot agree with private individuals on the exploration of the sea and establish, in this case, percentages or rewards on the eventual discovery of valuable heritage. In the case of the discovery of non-cultural treasures at sea, there are special cases in the international context that merit certain considerations.

A long legal dispute over the rights of a treasure faces Sea Search Armada (SSA) USA against the government of the Republic of Colombia. The conflict began in the 80s, when the company claimed to have located the San Jose galleon, sunk in 1708 by British forces in Colombian waters, with a fabulous cargo of gold. In 1994, the company filed a lawsuit in the city of Barranquilla, alleging ownership of what was found in the galleon, because it was located in an economically exclusive zone, in which the Nation exercised sovereign rights only regarding the exploitation and conservation of natural resources. In 2007, the Supreme Court of Justice of the Republic of Colombia ruled that the pieces that were found in San José were catalogued as of historical, artistic and archaeological value and would be owned by the country. Only the 50% of the extracted inventoried pieces as treasure were going to be given to the Company (SSA-USA). However, the parties did not reach an agreement. SSA-USA filed a lawsuit in the District Court of Columbia (USA) with which it sought compensation for U$D 17,000.00, as a result of the alleged breach of a contract that subscribed to the Colombian State. The District Court of Columbia ruled in favour of Colombia in the legal dispute over the parts of the San Jose galleon. The process has not been closed yet; the treasures of San Jose continue to be uncertain.

As noted, the rules of appropriation of a treasure in jurisdictional waters of a country are not clear and give rise to long legal disputes. Even though the 2001 UNESCO Convention on Underwater Heritage was an important step in legislating on controversial issues in this regard, many State parties have issued legal norms opposing the agreement (Colombia). In itself, the search for treasures in maritime waters will depend on the legislation of each State or agreements to that effect, both as regards their search conditions and the benefits of third parties (especially treasure-seeking companies).

A very special case of a legal declaration, but without being declared "underwater heritage"

On 13th March 1770, the British war sloop-of-war H.M.S. (His Majesty's Ship) Swift, from the Malvinas Islands, was sunk in the Deseado estuary, coast of the present province of

Santa Cruz, Argentina. Three people died, but 90 arrived at firm land. The Australian Patrick Rodney Grower, a direct descendant of a survivor, travelled to Puerto Deseado in 1975, carrying the diary of his ancestor with him in which he recounted the shipwreck.

With the narration of the archaeologist Dolores Elkin, who says: "This visit was the seed of an adventure carried out by a group of young divers from Puerto Deseado, who found remains of the sloop-of-war in an incredible state of conservation, thanks to the low temperature of the water and the sedimentary cover that had protected the ship and its contents."

In the 1990s, Elkin created the official program of underwater archaeology in Argentina. In 1997 Elkin directed the submarine investigation in the Swift sloop-of-war, summoned by the Brozoski Museum of Puerto Deseado.

It was registered as Cultural Heritage of the province of Santa Cruz under the scope of the Provincial Law 2472 and its amending law 3137 for the archaeological and paleontological properties of the province. By the Legal Declaration Nº 13/2003, "Provincial interest is exhibited the Swift sloop-of-war two centuries under the sea, through the regional museums Mario Brozoski (Puerto Deseado) and Father Manuel Jesus Molina (Rio Gallegos)" was dictated.

PROPOSAL: Description of heritage principles

These principles, considered as fundamental, mark the order in the normative system

1st Principle: "All the goods rescued (ship and pieces being moved) become part of the treasury of each country that is involved".

2nd Principle: "The site (s) and movable property must be previously legally declared to enter into the heritage economic system that contains them through an economic investment fund called underwater".

3rd Principle: "The actors have the mission of protecting heritage goods. They must first pass through the heritage valuation process, through the inter-subjective interpretation with the object to be valued. These should culminate with a contract and/or agreement and/or treaty. This procedure will depend on the jurisdiction to which the actor belongs".

Professionals (archaeologists, palaeontologists, etc.) who intervene in the rescue of the site must be registered in their country. They must present the underwater extraction and rescue project in the official enforcement body of corresponding jurisdiction/s. They must present a mapping of location (data that is within the Convention). This tool will serve for its approval; without the approval it would be an illegal case of extraction.

ACTORS			
Direct	**Lawful acts**	**Illicit acts**	**Indirect**
	(0; 1]	(-1; 0]	All bodies responsible for the protection of heritage in all jurisdictions of each country
Researcher/s: archaeologist, palaeontologist, etc.	With authorization, of registered and unregistered pieces	Without authorization	
Diver / rescue company			
Owner of the ship (country of origin - flying flag)			
Owner of the location where the boat sank (country)			

CURRICULUM VITAE OF AN ACTOR: DRA. DOLORES ELKIN – BIOGRAFIA AND PERFORMANCES -					
SCALE	**YEARS**	**BIOGRAPHY**	**SCALE**	**YEARS**	**PERFORMANCE**
Filo:6; Ac:2; Ge:2; Vi:2	**1987**	**Bachelor's degree in Anthropology (Specialty: Archaeology). University of Buenos Aires. Thesis: Analysis of resource exploitation areas in the middle and upper course of Las Pitas river (Antofagasta de la Sierra, Catamarca) and its relation with archaeological evidence of hunter-gatherers (With honors)**	**Filo:6; Ge:1; Vi:1**	**1981**	**(January): Participation in coastal surveys at Monte Hermoso (Province of Buenos Aires). Director: Lic. Daniel Conlazo (Asociation of Historical-Archaeological Studies).**

CURRICULUM VITAE OF DRA. DOLORES ELKIN – FINAL SCORE: HERITAGE POINTS 1196,08

BY CONVENTION ln 1196.08 = 7.086

si 4.5 < x <= 7.5 vp(x) = 20 (x - 4.5) + 10

si 4.5 < x <= 7.5 vp(x) = 20 (7.086 - 4.5) + 10

CV-DOLORES ELKIN = 61.73 Heritage points

All these actors must be valued and evaluated within the methodology together with what is rescued and with the site/s where the archaeological underwater site is located. For this, a location mapping of the pieces is required. This will determine the number of pieces each site has.

This goes to a contract or assessment agreement and heritage appraisal. The result goes to a separate fiduciary fund for heritage economic investment (involving all the states parties that have underwater deposits and the archaeologists who investigate and rescue those goods). The remuneration will come from that fund and divided according to the heritage valuation of each site and the heritage valuation of the piece and/or collection of the pieces.

Theoretical legal framework

To enter the world of science it is necessary to understand that this is handled with different types of research methodologies. For this case the search for opposites is used to analyse the problems of the legal system. It seeks to rescue the normative parameters that establish their internal order.

Problematic: Theory of the legal system

This section is based on the publication called "Manual of legislative technique" published by Piedad García Escudero Márquez (2011) where she describes that the normative legal order is impossible to know because it exceeds the quantitative limits. Not only the addressees but also the legal operators are not capable of covering such a number of rules, which produces what Carnelutti says: The legal system, whose most important merit should be simplicity, has unfortunately become a very complicated labyrinth in which those who should be the guides cannot get their bearings.

This proliferation of laws is a consequence of the increase in the scope of State action, for example as in Argentina in the area of heritage where the state is not introduced in the economic process because it only gives answers from the legislative technical point of view where patrimonial protection laws are proposed (grouping of assets), being special laws that also need continuous assistance and reform due to the acceleration of the changes in social reality.

The diagnosis of the problem is based on the complexity of the situations that the law must regulate: the multiplication of the law sources and the increasing technicality. All this causes a legislative expansion, a loss of the quality of the laws, as for its technique, as for its systematic coherence or its content.

Legislative proliferation is part of legal proliferation in general, joining abundance of laws and other norms to the abundance of administrative and judicial decisions as well as the development of legal literature, which we should take into account when trying to approach the subject by demanding methods to deliver simplicity and clarity.

The legislative technique is not intended to analyze each individual law. One of its greatest concerns is the unity and coherence of the legal system, in which there must be no contradictions and inconsistencies between the different rules that make it up, which may create perplexities in affected subjects and in the applicators of the Law.

There are structural defects that generate themselves a new regulation to correct the detected defects and also the deficit in the intensity of its effectiveness (called legislative hypostenia).

- The great instability of the norms, subjected to incessant and capricious modifications until actually making them instantaneous.
- The intense peculiarity of laws, which leads to a great fragmentation of the order
- The alarming fact of the growing incoherence of the legal order, in which the presence of antinomic or contradictory precepts is increasingly (a situation in which neither the citizen nor the legal professional knows what to expect, and is forced to ignore the order, often as a result of regulatory overlap or legal pollution).

1. PROPOSAL: Foundations for the normative organization

The objective of this paper is to show how the norms are inserted in the scope of a legal order to constitute a systematic and homogeneous set.

Answers to the above problems are based on:

- The introduction of rationality in legislation;
- The constitutional control of the quality of laws, as far as possible
- And even in the incorporation of technical elements, such as Informatics, to detect defects and inconsistencies in the laws and in the whole order. Both methodologies are incorporated in this last point: Heritage Coefficient and Heritage Economic Valorization, both subsumed by the theory of the legislative technique.

1.1. Development

Synthesis: Procuration of principles. Regulate the qualitative aspects to obtain the quantitative ones.

1st Principle: "Laws do not constitute isolated units, but form part of a system. So important for the legislative technique is the quality of the specific law as the homogeneity of the legal system and the absence of contradiction between the different norms that integrate it".

2nd Principle: "It is also necessary to take into account the way in which the incorporation of the norms to the legal system takes place: sanction, promulgation, and publication".

3rd Principle: "Therefore, it is of utmost importance to know which the law in force is in each historical moment. Legal security depends on it".

4th Principle: "The entry into force sets the day, month, year and place in which it is to take place. The subjects that subordinate the application of the norms are the time and the space as indispensable factors for their effective application".

5th principle: "The order of the amended laws will be that of their sanction. The modifications of precepts of the same law will follow the order of its internal division".

6th Principle: "A new law may abolish a previous law or may modify one or several laws".

7th Principle: "The legislator must always consider the problems of transience that the new law can provoke. The question is the incorporation of the new law to the legal order regarding the temporal succession with respect to previous rules to solve them in a clear and precise way, not leaving the resolution to the interpreter".

8th Principle: "The powers to the Executive and mandates of regulatory development must be express and precise in terms of their scope and execution term".

9th Principle: "Laws are not isolated elements. They are inserted in a legal system. They must maintain a coherence and sometimes maintain relations with other norms (or even other orders such as international ones) to which they are referred to".

10th Principle: "A code pretends to be a perfect and ordered system of legislation, based on the reason that produced the unification of the law. The code becomes a simplification instrument".

These are the first principles that must be fulfilled for inclusion in a methodological system of heritage valorization to become a tool of heritage economic impact.

2. Tool of application. Theoretical instructive

2.1. Description

The aim of this Instructive is to help the understanding of the confection of the tables of the software of the Heritage Coefficient.

The steps to prepare the first table (Component 1: Combination of jurisdictional and normative hierarchy) are:

1st step: To investigate in each country all laws (especially on "underwater heritage") that mention natural and cultural heritage and the norms legally joint by the subject.

a) Ratification of international laws sanctioned by the nation. International treaties, agreements, recommendations or letters reported by UNESCO and/or the ICOMOS are analyses and verified if they are ratified by legal norms.
b) National constitution articles, where the natural and/or cultural heritage is treated.
c) Provincial constitution articles or how they are called in the country being analyzed, where the natural and/or cultural heritage is mentioned.
d) Laws: Look for natural and/or cultural heritage in the different laws. These may be divided into general norms: codes, regulative norms, etc. The specific norms describe the object to protect in detail. Example of the legal declarations, the case in question: "Swift sloop-of-war exposition is legally declared of provincial interest" or "declare the list or catalogue of heritage goods as cultural heritage: a, b, c, … n.
e) Decree law: The search in the above mentioned law will be carried out in decree laws too.
f) Decree: The search in the above mentioned law will be carried out in decrees.
g) Resolution: The search in the above mentioned law will be carried out in resolutions.
h) General Resolution: The search in the above mentioned law will be carried out in general resolutions
i) Provision: The search in the above mentioned law will be carried out in provisions.

2nd step: If there exit subdivisions in each of the above mentioned matters (laws, decree laws, decrees, resolutions and provisions) they will be ordered. First the ones, coming from the Executive Power and then the ones coming from the Legislative Power in democratic countries and they will also be ordered in relation to the time of enactment based on the principles on the above mentioned legislative techniques.

3rd step: The final normative order is placed in the 1st row of the table in the "X" axis from low to high.

4th step: The court order is placed in the 1st column of the table in the "Y" axis and it is also organized from low to high. The organization of the legal territory is what it is called "jurisdiction". The legal-administrative competitions are delimited by the jurisdictions held by each government that is analyzed. Jurisdictions are determined in some cases in the national constitutions.

5th step: Shaded areas are the application relationship between the jurisdiction and regulations.

a) Provisions are often implemented by executive bodies at all levels of government: local, municipal, provincial, national and world-wide; for this reason is not shaded. Therefore, the subsequent step is to place the real cardinal numbers, from low to high starting from local and finishing with world-wide.
b) Resolutions are applied by the executive, legislative and judicial powers, thus covering all organs of legal jurisdictions. Then the subsequent step is to number consecutively following the above mentioned, from low to high, beginning at the top of the following column.
c) Decisions in other countries have a variety of different ways to state them. They are ordered from low to high. The order is given by the organization of powers: 1st Executive, 2nd Legislative and 3rd Judicial Branch. Although the three branches are legally equal, for a correlative order based on the objective which is heritage assessment, the first one indicates the value, the second gives the value, and the latter has the tools to retain its value.
d) The municipal ordinance, is applied only at the municipal level (legislative, city council), for this reason boxes that correspond to local level are grayed (lower to municipal jurisdictional organization), ..., provincial, national and world-wide. This area will not be counted at the moment of placing the respective numbers.
e) Decree: The decree is implemented by the executive branch at all jurisdictional levels. May be that some countries do not apply it, in smaller towns. Therefore, this area is shaded in gray and will not be numbered. But if there are decrees about property located in these towns, this can be ambiguous and therefore it can or cannot be shaded, this depends on the legislation of the place of analysis.
f) Decree-Law: it is a rule that was made in a "de facto" government. It is not democratic. So it is minor before the law. It could have been used in all jurisdictional levels or not, that also depends on the available information. The blank boxes will be numbered. The gray boxes will not be taken into account.
g) Legal declaration: It is a specific norm. In this case it exists at provincial level.
h) Law: It is only applied at national and provincial levels. It is not applied in municipal or world-wide levels.
i) Provincial constitution: Articles corresponding to the natural and cultural heritage are incorporated.
j) National constitution: Articles corresponding to the natural and cultural heritage are incorporated.
k) World-wide: Treaties, recommendations, agreements or letters are generated by a country ratification national law. In this case, there is a homologation. Each cell is numbered consecutively as has been expressed, but the homologation is represented by two-way arrows on both sides of the boxes: ⟷

6th step: How and where to insert the arrows.

Based on the pre-established order in the 1st row, the entire table is organized internally.

All arrows are as follows: ⟶

Except for the homologous case that is represented ⟷ or it may be, for example, that there is lack of information at world-wide level, so the nation weighs more and the representation, it is then like this: ⟵

As regards the diagonal arrows, they are represented as follows: ↙ which links the relation between two cells. It starts at 12 and finishes at 2 (see the example). This means that "cell 2 is heavier than cell 12". So, regulations are divided into general and specific. The specific ones weigh more than the general ones, because what corresponds to specific regulations is confined to heritage protection. The specific one determines its higher protection at regulatory and jurisdictional level.

1 General (legal declaration)	12 General (law)
2 Specific (legal declaration)	13 Specific (law)

But when there is a relationship between a standard (provision) and other standard (resolution) and between two different jurisdictions (municipal) and (provincial), the municipal resolution weighs less than the provincial provision.

a) Or perhaps, there is not any municipal regulation and there is a provision on heritage.

2 G	13 G
3 S	14 S

b) Or perhaps it is the opposite situation. There is no legislation at provincial level and there is at the municipal level. Or if there were a regulatory decree "<" a law, because it is complementary to the law.

2 G	13 G
3 G	14 G

c) Or there may be regulatory norms in both cases, so, the case is homologous. For example: ratification of a treaty by law.

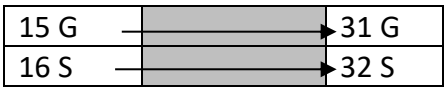
2 G	13 G
3 G	14 G

d) But in this case, and it depends on the content of the rule, the jurisdiction will "weigh" more and therefore the arrow will be as represented in Chart a)

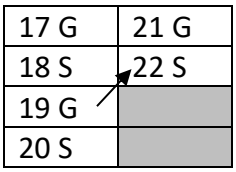
2 G	13 G
3 S	14 S

e) This case is repeated throughout the whole table when there is this type of correspondence.

f) When there is a match where the cells are separated by voided cells (grey), then the diagonal arrow format exists.



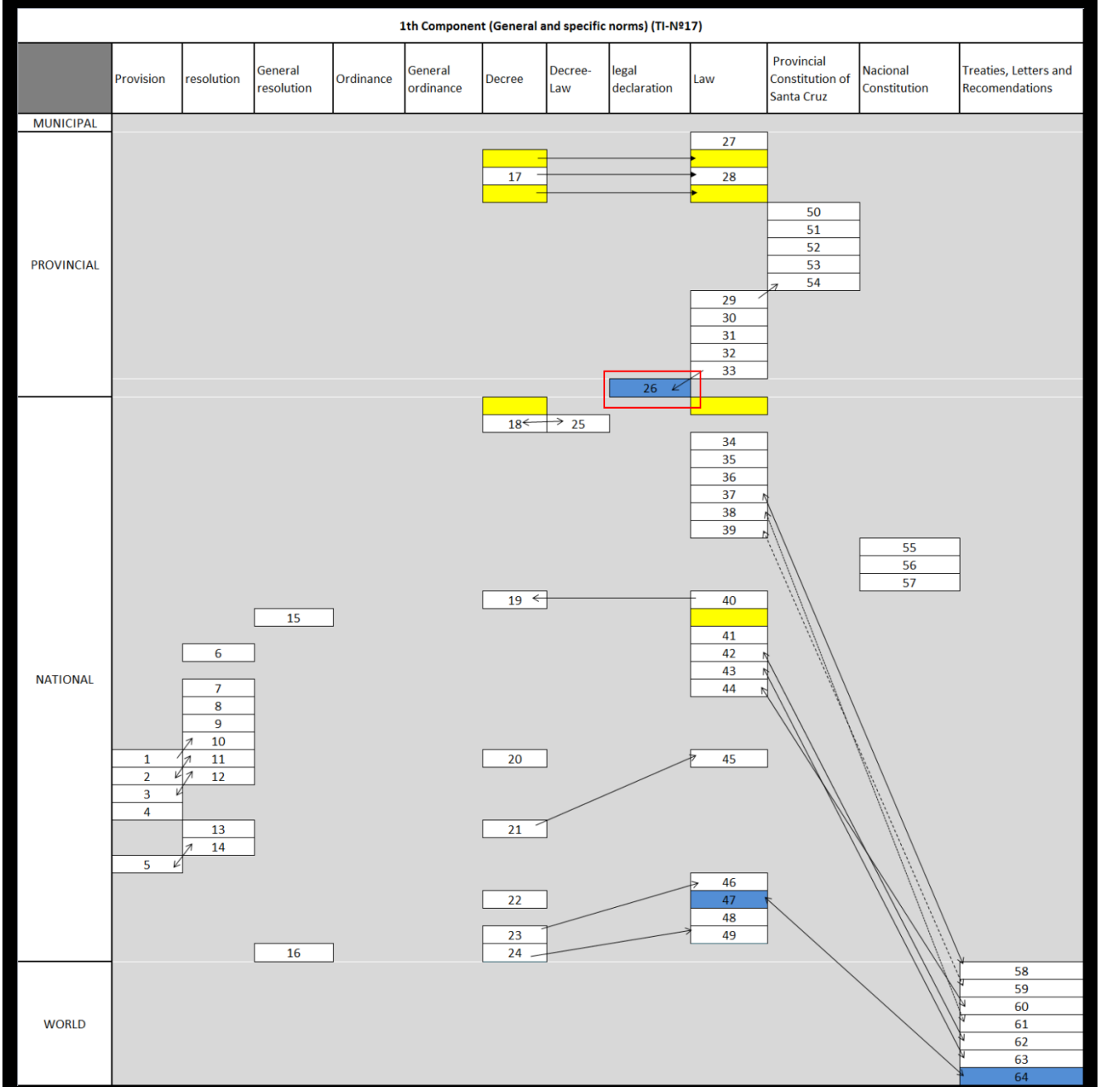
g) When there is a direct match of cells in a diagonal form (grey boundary zone) the arrow is used as the first case analyzed in points a), b), c) and d)

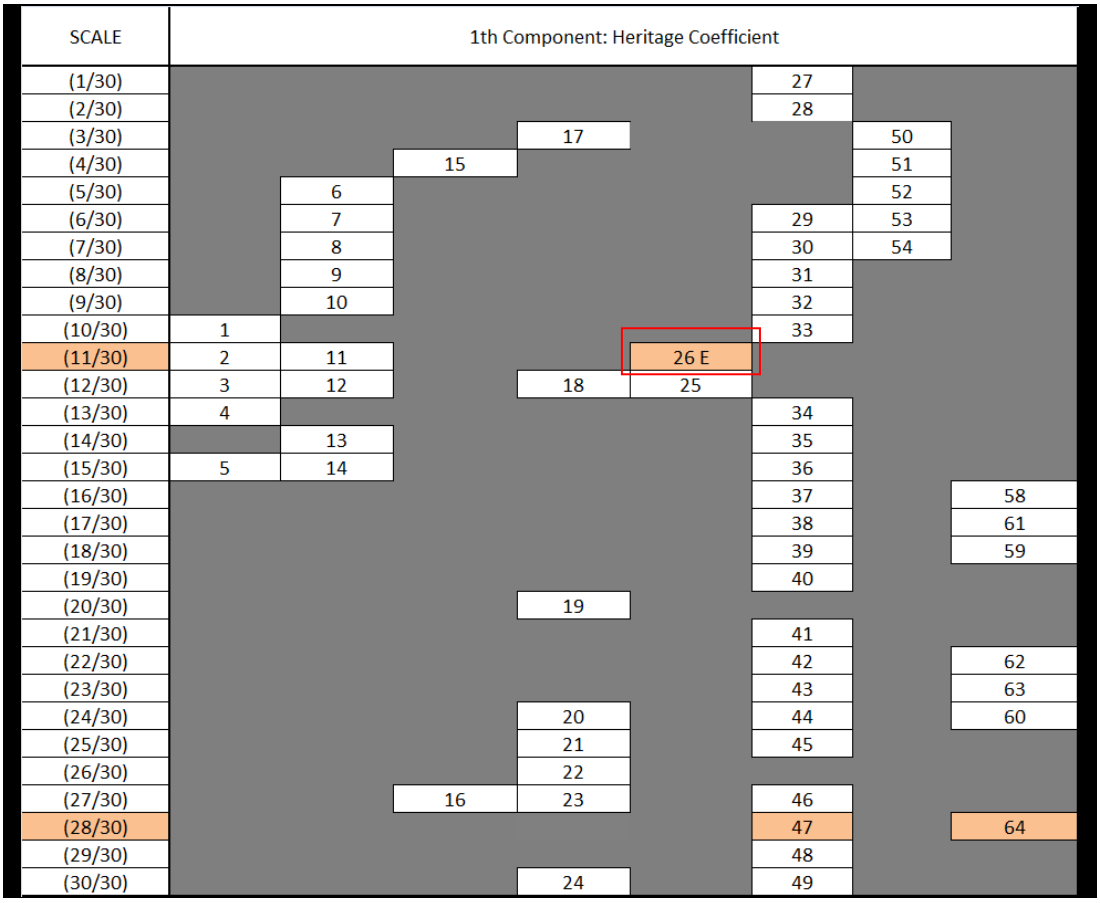


E.g. The score of the legal declaration was calculated based on all the normative corpus that corresponds to value the underwater heritage, taking as an example the objects of the HMS Swift (sloop-of-ward) rescued by Dr. Dolores Elkin in Puerto Deseado, Province of Santa Cruz, Argentina. It was based on three tables:

1. Analysis, location and enumeration of the normative corpus (Annex 1)
2. Synthesis of the enumeration of the normative corpus
3. Scale that was determined with respect to the previous ones to then go to the corresponding formula of the Heritage Coefficient and calculate the value of the legal declaration of the case in question.

1st Component: jurisdiction and norms





SCALE	1th Component: Heritage Coefficient									
(1/30)							27			
(2/30)							28			
(3/30)					17			50		
(4/30)				15				51		
(5/30)			6					52		
(6/30)			7				29	53		
(7/30)			8				30	54		
(8/30)			9				31			
(9/30)			10				32			
(10/30)	1						33			
(11/30)	2	11				26 E				
(12/30)	3	12			18	25				
(13/30)	4						34			
(14/30)		13					35			
(15/30)	5	14					36			
(16/30)							37		58	
(17/30)							38		61	
(18/30)							39		59	
(19/30)							40			
(20/30)					19					
(21/30)							41			
(22/30)							42		62	
(23/30)							43		63	
(24/30)					20		44		60	
(25/30)					21		45			
(26/30)					22					
(27/30)				16	23		46			
(28/30)							47		64	
(29/30)							48			
(30/30)					24		49			

Rights of damage

This work section is based on the publication "Risks of development in the right of damages. Technology. Overcrowding. Consumption. Protection of health. Effect of scientific advances. Individual and collective damages. Consumers. Environment. Repair. Precautionary principle. Role of the State. Constitutional protection. Civil and Commercial Code" by LMR Garrido Cordobera (2016). He considers that the modern law that wants to progress in the search for the common benefit must fight for the just solution in damages, with the certainty that behind the damage is not any chance or impersonal or anonymous misfortune, but the act of a person or the creation of a risk and this is fully applicable to product liability and development risk. So, in a general sense, it can be said that the right of damages is intended to guarantee individuals compensation for certain forms of injury or impairment of their persons or their property and in its broadest aspect to ensure the community or groups the protection and redress of collective interests.

As regards the consumer product damage, the problem is of enormous interest and complexity because due to its nature it is both an individual and a collective damage, it affects communities of individuals and can occur in regions that escape the borders of a single country, always violating the right to quality of life.

It has always been maintained that it is necessary in matters such as the one that concerns a man-centered worldview that reinstates his supremacy and puts scientific and technical achievements at the service of society. It is to restore to the human being the dignity of being the nucleus, the center and not a mere statistical number or an economic instrument.

It is necessary to take into account that at present the criterion of considering the other man not as a being but as a number or a cost variable to be taken into account in case of compensation that it is not wrong. But there is another criterion that considers that this is an underestimation of the quality of life of the other and for the value of life itself. Then: What is the balance between these two criteria that act simultaneously in the Methodology of heritage economic valorization?

The position defended by Argentine law is that the victims cannot be sacrificed for the advancement of science (researchers: archaeologists, paleontologists, rescue technicians underwater divers), because this is not compatible with the notions of sustainable development or quality of life and even less with the rights of the man. It is also important to remember that future generations represented in the offspring are generally under risk.

There exists the tendency to attribute responsibility to the manufacturer, builder, or designer. It is said that the safety guarantee or better the security guarantee, corresponds to the structure of a free market and even to a planned economy corresponding to the nature of company and the assumption of the risks. Its activity is emphasized. The existence of a risk of activity has always been maintained, not as a basis for a subjective factor but in the objective of risk creation. It is necessary to define and consolidate the existence of such risks.

There is another current of thought that considers an unforeseeable and atypical risk and that it is unfair to make it fall on the manufacturer, builder or designer, because it is statistically ungovernable and unpredictable and therefore impossible to be ensured because its dimension is unknown. The level of accuracy of a product is provided by the continuous study of science and not on the thing itself.

There exists Rumelin´s legal theory on causality relation matters, by which the goal is reached in an involuntarily way.

Applying the criteria of what has been studied as regards the function and the police power it can be said that who contracts the obligation to provide a service -in this supposed control on the care of the heritage- the State must fulfill it in the appropriate way for the concretion of the purposes, so that as guarantor and protector of the common asset, its responsibility, especially taking into account that the cultural and natural heritage is a social good, will be engaged.

For all this, it is supported that the damage caused by "development risk" in the Argentine law, is a compensable damage, which must be indemnified; there is no rupture in the causal relationship. The time of the manifestation of the damage is what must be taken into account by the consolidation of the damages, and yet it is firmly considered that these serious damages must always be compensated.

We are faced here with a dilemma in legal security between the application bodies in Argentina (civil and commercial courts), which among their attributes provides the prescription and the need to take into account the characteristics of this type of damages and their Irreversible consequences, not only for the consumer but for their offspring as well.

There is a hierarchy of values to be taken into account:

1. On one hand, the innocent victim who crosses the unjust harm and who should not bear and whose only guilty conduct has been to believe in what he has been told about the safety or non-danger of accepting a certain product.
2. On the other hand, there is another victim (the whole society), because a collective damage appears.

Faced with the possible inexistence or insolvency of the manufacturers (builders and/or designers) in 2016 Dr. Garrido Cordobera proposed guarantee funds, an alternative operability, so that the repair is somehow satisfied, which does not exist in Argentina.

To enter into a guarantee fund, it is necessary to transpose the values of the qualitative aspects (object, event, age, authenticity, historical situation, geographical location, authors, etc.) to quantitative aspects by means of a suitable methodology, as the Heritage Economic Valuation Methodology. This methodology has the monetary unit of property derived from the administrative structure of each country for which the price is calculated. The hypothetical example only calculates the extraction of the objects giving the corresponding economic valuation. The rest (boat, event, etc.) belongs to another country/ies and at the moment there is no such information.

Only one hypothetical example that has a legal declaration will be calculated

EVENT (1ST COUNTRY)

Denomination	Partial results	Higher level
Antiquity of the flotsam sighting: $2017 - 1982 = 35$	$F(t) = \frac{10}{1000} \cdot x + 1$ $F(t) = \frac{10}{1000} \cdot 35 + 1$ $F(t) = 1.35$	F(t) = 1.35
Historial value	$VH = Ny \cdot \frac{F(t)}{Tmh}$ $VH = 2 \cdot \frac{1.35}{3}$ $VH = 0.9$	VH = 0.9
Event value as Heritage Coefficient	6.85	2124
Value of the use of the property	25	35

$$VEvent = 1.35 \cdot \left(0.9 + \frac{6.85}{2124} + \frac{25}{35}\right)$$
$$VEvent = 1.35 \cdot (0.9 + 0.0032 + 0.71)$$
$$VEvent = 1.35 \cdot 1.61$$
$$VEvent = 2.17\ Heritage\ point$$

1st Country: result of the event (discovery)

$$Ve(t) = \sum Vl\left(e^{\varphi(t - t_i)} - 1\right) \cdot \Delta(t - t_i)$$

$$Ve(t) = 2.17 \cdot \left(2.73^{0.012(2017-1982)} - 1\right) \cdot \Delta(2017 - 1982)$$
$$Ve(t) = 2.17 \cdot (2.73^{0.012 \cdot 35} - 1) \cdot 35$$
$$Ve(t) = 2.17 \cdot (2.73^{0.42} - 1) \cdot 35$$
$$Ve(t) = 2.17 \cdot (1.52 - 1) \cdot 35$$
$$Ve(t) = 2.17 \cdot 0.52 \cdot 35$$
$$Ve(t) = 39.42\ Hp$$

$$\boldsymbol{HMU = \frac{Expenses + Resources}{HPU\ (100HP) x\ Amount\ of\ declared\ property\ in\ a\ country}}$$

$$1st\ Country = Ve(t) * HMU_{1st\ country}$$
$$1st\ Country = 39.42 * HMU_{1st\ country}$$

Flotsam (2nd country): Heritage valuation of the 2nd principle		
DENOMINATION	PARTIAL RESULTS	HIGHEST LEVEL
Antiquity	2017 - 1770 = 247	3.47
Historical value	3.47	
Value of the ship sunk in international territory (supposed)	9.2	2124
Value of the use of the property	25	35
Constructive value	2	2
Value of biotechnical, morphological, environmental aspects	24	25
Value of land, property buried without knowledge of its existence	1	1

$$F(t) = \frac{10}{1000} \cdot x + 1$$
$$F(t) = \frac{10}{1000} \cdot 247 + 1$$
$$F(t) = 2.47 + 1 = 3.47$$
$$VH = 15 \cdot \frac{3.47}{15}$$
$$VH = 3.47$$

$$VP_{ND} = Flotsam\ 2nd\ Country = 3.47\left\{3.47 + \frac{9.2}{2124} + \frac{25}{35} + \frac{2}{2} + \frac{24}{25} + \frac{1}{1}\right\}$$
$$VP_{ND} = Flotsam\ 2nd\ Country = 3.47\{3.47 + 0.004 + 0.71 + 1 + 0.96 + 1\}$$
$$VP_{ND} = Flotsam\ 2nd\ Country = 3.47 * 7.14$$
$$VP_{ND} = Flotsam\ 2nd\ Country = 24.77\ Hp$$

2nd Country: result of the flotsam

$$VP_C(t) = VP_c * e^{-\alpha * t}$$
$$VP_C(t) = 24.77\left(2.72^{-ln2*\frac{t}{30}}\right)$$
$$VP_C(t) = 24.77\left(2.72^{-ln2*\frac{3.47}{30}}\right)$$
$$VP_C(t) = 24.77\left(\frac{1}{2.72^{0.69*0.11}}\right)$$
$$VP_C(t) = 24.77\left(\frac{1}{2.72^{0.079}}\right)$$
$$VP_C(t) = 24.77\left(\frac{1}{1.08}\right)$$
$$VP_C(t) = 24.77 * 0.92 = 22.93\ Hp$$

$$V_0 = \sum VP_{Nd} + VP_c(t)$$
$$V_0 = 24.77 + 22.93 = 47.70$$

$$Va(t) = V_0\left(e^{\wp(t-50)} - 1\right) * \Delta(t-50)$$
$$Va(t) = 47.70\left(e^{0.02(247-50)} - 1\right) * \Delta(247-50)$$
$$Va(t) = 47.70\left(e^{0.02\cdot 197} - 1\right) * 197$$
$$Va(t) = 47.70\left(e^{3.94} - 1\right) * 197$$
$$Va(t) = 47.70(51.41 - 1) * 197$$
$$Va(t) = 47.70 * 50.41 * 197$$
$$Va(t) = 473478\ Hp$$

$$\boldsymbol{HMU = \frac{Expenses + Resources}{HPU\ (100HP)x\ Amount\ of\ declared\ property\ in\ a\ country}}$$

$$2nd\ Country = [VP_c(t) + VP_{ND} + Va(t)] * HMU_{2nd\ country}$$
$$2nd\ Country = [22.93 + 24.77 + 473478\ ] * HMU_{2nd\ country}$$
$$2nd\ Country = 473826 * HMU_{2nd\ country}$$

COLLECTION OF OBJECTS		
DENOMINATION	PARTIAL RESULTS	HIGHEST LEVEL
Dolores Elkin CV	61.73	
Antiquity	2017-1990 =27	
Historical value	0.63	
Value of the collection in international waters by Heritage Coefficient	11	2124
Legal declaration of the exhibition	366.18	2124

$$F(t) = \frac{10}{1000} \cdot x + 1$$

$$F(t) = \frac{10}{1000} \cdot 27 + 1$$

$$F(t) = 0.27 + 1 = 1.27$$

$$VH = 1 \cdot \frac{1.27}{2}$$

$$VH = 0.63$$

$$CP_p = 1000\frac{11}{30} + 100\left[\frac{1}{11}\left(\frac{14}{30}\right)\right] + 1 + 1$$
$$CP_p = 1000 * 0.36 + 100[0.09 \cdot 0.46] + 1 + 1$$
$$CP_p = 1000 * 0.36 + 100 * 0.0418 + 1 + 1$$
$$CP_p = 360 + 4.18 + 1 + 1$$
$$\boxed{CP_p = 366.18}$$

3rd Country: Result of the collection of the objects

$$VP_{ND} = Collection\ 3rd\ Country = 1.27\left\{61.73 + 0.63 + \frac{11}{2124} + \frac{366.18}{2124}\right\}$$
$$VP_{ND} = Collection\ 3rd\ Country = 1.27\{61.73 + 0.63 + 0.0051 + 0.172\}$$
$$VP_{ND} = Collection\ 3rd\ Country = 1.27 * 62.53$$
$$VP_{ND} = Collection\ 3rd\ Country = 79.42\ Hp$$

$$\mathrm{Ve(t)} = \sum \mathrm{V1}\left(e^{\wp(\mathrm{t}-\mathrm{t_i})} - 1\right) * \Delta(\mathrm{t}-\mathrm{t_i})$$

$$Ve(t) = 79.42\left(2.73^{0.012(2017-1990)} - 1\right) * \Delta(2017 - 1990)$$
$$Ve(t) = 79.42(2.73^{0.012 \cdot 27} - 1) * 27$$
$$Ve(t) = 79.42(2.73^{0.32} - 1) * 27$$
$$Ve(t) = 79.42(1.38 - 1) * 27$$
$$Ve(t) = 79.42 * 0.38 * 27$$
$$Ve(t) = 820.52\ Hp$$

$$\boldsymbol{HMU = \frac{Expenses + Resources}{HPU\ (100HP)x\ Amount\ of\ declared\ property\ in\ a\ country}}$$

$$HMU = \frac{34{,}310{,}000}{100 * 81}$$

$$HMU = \frac{34{,}310{,}000}{8100}$$
$$HMU = 4235.80$$

$$3rd\ Country = [Ve(t) + VP_{ND}] * HMU_{3rd\ country}$$
$$3rd\ Country = [820.52 + 79.42] * HMU_{3rd\ country}$$
$$3rd\ Country = 899.94 * 4235.80$$
$$3rd\ Country = 3811968.07\ \ Argentine\ pesos$$

16.36	pesos	1	U$D
3,811,968.07	pesos	233.005	U$D

The right to damages must conform to these new limits and it must be understood that issues such as environmental damage or specifically that produced by the risk of development also generates unfair damage, which strives for its repair.

Man encounters a great power that can lead to prodigies or cause catastrophic damages.

Conclusion

The economic valuation methodology is not only a tool to quantify but also serves as a corrective tool. If the international legislation on underwater heritage is analysed, it is seen that each involved country can link the regulations with respect to other countries involved. The methodology has the ability to see the normative corpus broadly on this topic in question. If two countries are homologated the missing gaps between them will be seen.

On the other hand the system generates advanced scientific software which must be evaluated in order to avoid damages. So it is necessary to study the collateral damages that this can cause, to be a correct tool of heritage impact.

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