

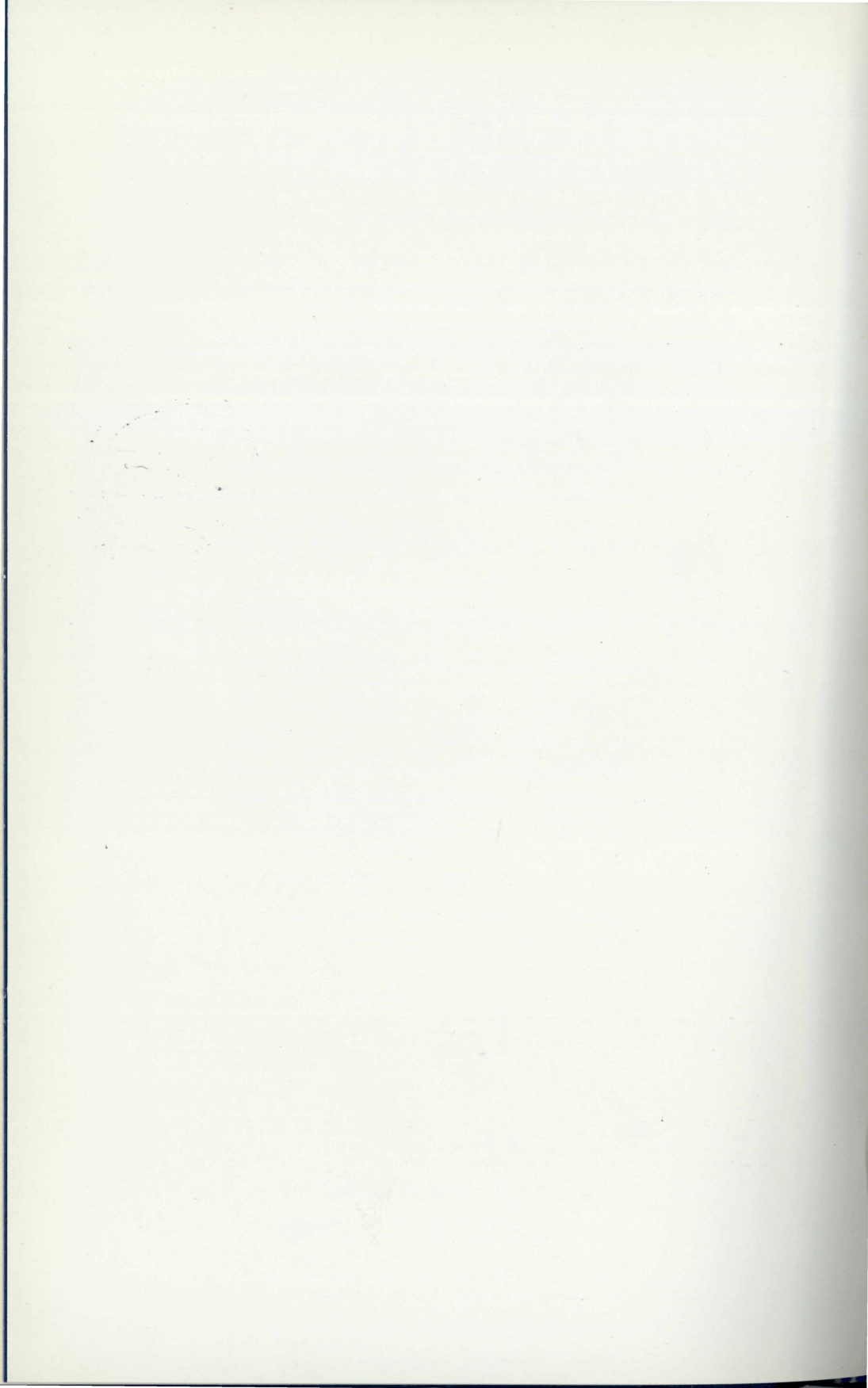
MEDITERRANEAN SOCIAL SCIENCES NETWORK

Newsletter - No 4 - 1990



FOUNDATION FOR INTERNATIONAL STUDIES
at the University of Malta, Valletta.





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MEDITERRANEAN SOCIAL SCIENCES NETWORK



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Typeset at A-Z Publicity Co. Ltd., Valletta
Printed at Progress Press, Valletta

ISSN: 1015 - 5090

Editorial

"Development and Environment in the Mediterranean" was the theme of an International meeting held in Malta between the 3rd and 4th November 1989 at the Foundation for International Studies of the University of Malta, by the Mediterranean Working Group of EADI (European Association of Development Research and Training Institutes). The cultural patrimony of the Mediterranean is often threatened by that type of development closed within the limited framework of its economic aspect. The discussion during the EADI conference evolved on these lines, precisely on two mainstreams: "Environmental Concerns" and "Economic Dimensions". The environmental aspect included research studies and discussions on cultural, ecological, geographic, and demographic themes. The economists present during the meeting concentrated on the ways and means of protecting the environment without hindering economic and technological progress.

In this respect, the EADI Working Group and the scientific committee of the Mediterranean Social Sciences Network through Professor Salvino Busuttil, Director General of the Foundation for International Studies, had agreed in Bodrum, Turkey, during a similar meeting of EADI, that the Foundation for International Studies would publish the proceedings of the EADI meetings, through the Newsletter of the Mediterranean Social Sciences Network.

It is therefore my pleasure to present in this issue three research studies related to one of the mainstreams discussed during the Malta EADI Meeting, namely the environmental dimensions concerning development.

Development is a term that is commonly taken to mean increasing national output of wealth mainly through industrialization. But the consideration of only this aspect would not be enough to speak of development especially when knowing that sometimes this economic type of development is reached to the detriment of other aspects of human life, namely the Social, Cultural and Political. Development would be an alienation if it did not comprise all aspects of human life and all the members of society in particular and of societies in general.

Development cannot be restricted to the Gross National Product (GNP), but it has to encompass the general well-being of all the members of Society. The economic aspect is in relation to the social aspect in the concept of development. It would be absurd to have a high GNP without meeting the basic needs of the people. In this sense, development means in the first stance the employment of economic growth to meet the basic needs including food, shelter and essential services like sanitation, health, education, transport and job opportunities, minimally speaking, but also

qualitative factors like the environment, decision making, and the rights of individuals, especially of minority groups. Development is not a matter of choosing between economic and social priorities, but of integrating these two aspects, as well as the other aspects of human life.

Development contains also a political dimension. A developed country is also an independent State. Colonialism or Neo-Colonialism, oppression or exploitation, capitalism or communism, or any other situation where the people of a given society cannot be said to have a full control of their own affairs, manifest underdevelopment, even if there is economic progress. In these situations, development would mean 'liberation'. But here too, the political and economic dimensions of development are not necessarily mutually exclusive; on the contrary they can be easily integrated on objective development.

Development should also imply the Cultural aspect. Economic development cannot in any way be reached at the expense of cultural identity and patrimony including the natural environment. This aspect should not only be safeguarded, but also be an integrative part of the development process itself. That type of development which does not respect the Culture tends to be resisted. As an example one can mention the case of Iran. Many Iranians felt that the Shah's modernization policy was essentially contrary to their Islamic Culture. This feeling produced a cultural revolution where people preferred their cultural identity to economic advancement. On the other hand, modernization and economic advancement in Japan did not produce such a drastic cultural lag. This shows that, as with social and political dimensions, it is not a case of either culture or economic development. There can be a development which comprises each and every one of its dimensions¹.

In this connection the present issue features the studies of Luigi di Comite and Maria Rosaria Carli (Italy), Frank Carter (England), and Patrick Schembri (Malta).

Luigi di Comite and Maria Rosaria Carli in their paper on "Demographic Development in the Mediterranean Area" analyse the population distribution of the Inland Sea. The population of the Mediterranean, belonging to the three continents, is heterogeneous on account of tradition, education, religion, culture and economic resources. This heterogeneity is presenting different demographic trends. In this context, new economic and social orders are emerging. The di Comite-Carli analysis focuses on the main differences of the demographic balances within the Mediterranean.

Frank W. Carter carried out a case study of Hvar Island in Yugoslavia. It resulted that the pressure for economic growth can present hazards for the

1. Michael Haralambos (ed), *Sociology New Directions, Lancashire 1989*, pp 94 - 96

natural environment if great attention is not paid. Just to quote one example from this research, Carter mentions that in Hvar there are plans for building a new airport, mainly for the tourist industry, on a site of great ecological and archeological importance, when this can be easily done with much less damage on another site. This is just one of the many cases of environmental abuse in the Mediterranean basin.

Patrick J. Schembri in his study "The Natural Environment of the Maltese Islands: Human Impact and Conservation" describes the geological composition of the Maltese Islands and their ecological characteristics with their flora and fauna. He shows further how the continuous growth of the built-up areas, residential and industrial, are presenting a threat to the richness of the natural environment. This is in part due to the tourist industry, which is, however, one of the pillars of the Maltese economy.

It is hoped that the studies presented in this issue will enhance a better understanding and appreciation of the environment as a development factor. The studies on the economic aspects of development in the Mediterranean will be published in due course.

Carmel Tabone O.P.

Coordinator

Mediterranean Social Sciences Network

Demographic Development in the Mediterranean Area

by Luigi di Comite and Maria Rosaria Carli

1. Introduction

Any expert in population problems knows well that the area of the Mediterranean basin - where the populations belonging to three continents, extremely heterogeneous on account of traditions, education, religion, culture, economic resources, etc., meet - represents one of the world areas in which new economic and social orders are emerging, also because of the coexistence of very different demographic trends.

Having already analysed on previous occasions the demographic aspects of this problem, from the point of view both of the differentiated demographic dynamics (Di Comite, 1988; Blangiardo Di-Comite, 1989) and of the migratory flows concerning the Mediterranean area (Di Comite, 1985; Di Comite, 1989), this time we intend to make a brief review of the main differences that can be observed, at present and in the future, about the demographic balances in this area, studying the U.N. data, that are quite similar to one another.

2. The Differential Demographic Growth

Before analysing the demographic situation of the Mediterranean area, it is very useful to make some considerations about the present world trend, according to what has already been observed on previous occasions (Vallin, 1986; Di Comite - Cutrignelli, 1989).

The data shown in Table 1, even if synthetic, give quite a precise idea of the recent world dynamics and of its future evolution - according to the average variable of the demographic forecasts published by the United Nations in 1986 (United Nations, 1986).

Luigi di Comite lectures at the Dipartimento per lo Studio delle Società Mediterranee - Università degli Studi di Bari; while Maria Rosaria Carli lectures at the Istituto per la Ricerca sull'Economia Mediterranea - Consiglio Nazionale delle Ricerche - Napoli.

This paper was written in connection with the research programme on "Migrazioni mediterranee e sviluppo demografico dell'Africa settentrionale", financed by M.P.I. (40%)

The world population, that at present is little more than 5 billion, was nearly 2.5 billion in 1950; as a matter of fact, in less than forty years, the world population has doubled.

Continuing in its development, it is bound to reach more than 6 billion before the end of this century and 8.2 billion in 2025.

Tab. 1 - World demographic evolution for geographic area, 1950 - 2025

GEOGRAPHIC AREAS	POPULATION (in million)				1000 r			
	1950	1980	2000	2025	1950-80	1980-2000	2000-25	1950-2025
Whole World	2516	4450	6122	8206	19,2	16,1	11,8	15,9
Developed countries	832	1137	1277	1396	10,5	5,8	3,6	6,9
Developing Countries	1684	3313	4845	6809	22,8	19,2	13,7	18,8
Africa	224	479	872	1617	25,7	30,4	25,0	26,7
Eastern Asia	671	1176	1475	1721	18,9	11,4	6,2	12,6
Southern Asia	704	1408	2074	2814	23,4	19,6	12,3	18,6
Latin America	165	361	546	779	26,4	20,9	14,3	20,9
North America	166	252	297	345	14,0	8,2	6,0	9,8
Europe	392	485	512	524	7,1	2,7	0,9	3,9
U.S.S.R.	180	265	315	368	13,0	8,7	6,2	9,6
Oceania	13	23	30	38	19,2	13,4	9,5	14,4
E.E.C.	259	318	330	329	6,9	1,9	-0,1	3,2
Mediterranean Area	220,3	342,5	444,7	559,4	14,8	13,1	9,2	12,5
a) Europe	150,2	193,1	209,4	217,7	8,4	4,1	1,6	5,0
b) Asia	27,5	60,4	92,8	136,7	26,6	21,7	15,6	21,6
c) Africa	42,6	88,9	142,4	205,0	24,8	23,8	14,7	21,2

Source: United Nations (1986)

Briefly, as is clearly shown by the annual average variation rates calculated by

$$r = \left(\frac{P_t + h^{1/h}}{P_t} \right) - 1,$$

the development speed of the population should undergo progressive contractions, because the value of r is 19.2% in 1950-80, 16.1% in 1980-2000 and 11.8% in the following 25 years.

However, the main problem linked to the world population growth is, above all, the huge heterogeneity that can be observed moving from the developed countries to the developing ones, in other words, from one continent to another.

According to these considerations, we feel it necessary to underline some data shown in Table 1, even if we are obliged to leave out other aspects of this phenomenon:

- the population percentage belonging to the developed countries shrinks remarkably from 33.1% in 1950 to 17.0% in 2025;
- the African population incidence grows very rapidly from 8.9% in 1950 to 19.7% in 2025;

Demographic Development in the Mediterranean Area

- (c) the European population decreases considerably from 15.6% in 1950 to 6.4% in 2025;
- (d) even the Mediterranean population diminishes from 8.8% in 1950 to 6.8% in 2025.

It is quite evident that this evolution is greatly affected by the different levels in birth and death rates. The natural growth rate that is at present reckoned, all over the world, about 17%, varies considerably passing from the developed countries (5%) to the developing ones (21%); moreover, even inside these two groups we can observe several heterogeneous situations because:

- (a) in a large number of developed countries the rate is negative, null or even more than 1%;
- (b) in a much larger number of developing countries, the rate is more than 30%.

3. Natural Movement and Demographic Growth in the Mediterranean Area

At present in the Mediterranean area, there are extreme situations as far as the natural movement, and therefore, the population growth strength is involved.

In the 18 countries that, even on other occasions (Di Comite, 1988) we have mentioned as belonging to this area (see Table 2), there are crude birth rates reaching 40%, (Syria and Algeria) and rates of 10-11%. (Italy, Spain, Greece, etc.) which are not enough to guarantee the generation substitution.

Tab. 2 - Estimation on the doubling time of the demographic size of the Mediterranean countries, based on the birth and death situation (1986)

Countries	Crude Rates (%.)		Difference (1000 r)	$t = \frac{\log 2}{\log (1+r)}$
	birth	death		
Portugal	12	9	3	231,4
Spain	11	8	3	3231,4
France	14	10	4	173,6
Italy	10	9	1	693,5
Yugoslavia	15	9	6	115,9
Albania	25	6	19	36,9
Greece	11	10	1	693,5
Malta	15	8	7	99,4
Turkey	30	8	22	31,9
Syria	44	6	38	18,6
Lebanon	28	7	21	33,4
Israel	23	7	16	43,7
Cyprus	19	9	10	69,7
Egypt	38	9	29	24,2
Lybia	39	8	31	22,7
Tunisia	32	7	25	28,1
Algeria	42	10	32	22,0
Morocco	36	10	26	27,0

Actually, at present, the natural growth of these populations is essentially guaranteed by the low crude death rates, due to the favourable age structure of the population, and is bound to disappear progressively with the development of the demographic aging processes.

Leaving out the future evolution of fertility and mortality in these countries, let us consider the present situation observing the data in Table 2 and particularly the data on the natural growth rate, that can be reckoned as the difference existing between the birth and death rates. These data become more and more interesting if we consider the ratio

$$t = \frac{\log 2}{\log (1+r)} \quad [2]$$

that is the doubling time (expressed in years) of a population growing according to the Malthusian hypothesis, because it gives us the possibility of estimating in a different way the size of the diversities already observed (see Fig. 1).

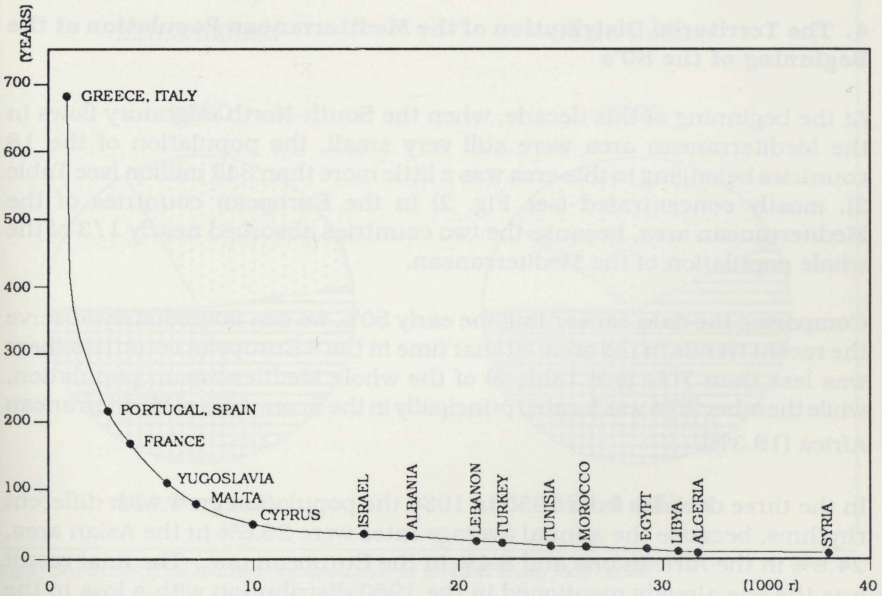


Fig 1 - Doubling time of a population developing according to the malthusian hypothesis

Just considering the natural movement and leaving out other important aspects such as the migratory flows and the structural characteristics of the populations, the data in Table 2 and Fig. 1 clearly show the dualism between the European shore countries and the Asian and African ones.

In most of the European countries the demographic transition processes have already ended and now there is a traditional or new post-transitional

phase (Van de Kaa, 1987), while, on the other hand, in a large number of Asian and African countries a population explosion is taking place with the due adaptations because of the case specificity (Trifa, 1988).

This consideration explains the heterogeneity in the Mediterranean countries, among which we can observe the cases of Italy and Greece with a natural growth rate of 1%, meaning that their population should double in more or less 700 years, and the case of Syria, with a rate of 38%, meaning that it should double its population in less than 20 years.

The coexistence of such situations in quite a limited territorial area like the Mediterranean one explains the importance of the demographic aspect in the progressive development and growth of the South-North migratory flows involving this area; in fact, these flows have contributed in determining the transition of countries such as Italy (Natale, 1988) and Spain (Munoz Peres and Izquierdo Escribano, 1989) from traditional emigration to new immigration areas.

4. The Territorial Distribution of the Mediterranean Population at the Beginning of the 80's

At the beginning of this decade, when the South-North migratory flows in the Mediterranean area were still very small, the population of the 18 countries belonging to this area was a little more than 342 million (see Table 3), mostly concentrated (see Fig. 2) in the European countries of the Mediterranean area, because the two countries absorbed nearly 1/3 of the whole population of the Mediterranean.

Comparing the data concerning the early 50's, we can immediately observe the recent trends in the area: at that time in the 8 European countries there was less than 70% (see Table 5) of the whole Mediterranean population, while the other 30% was located principally in the 5 countries of Mediterranean Africa (19.3%).

In the three decades from 1950 to 1980 the population grew with different rhythms, because the annual average rates were 26.6% in the Asian area, 24.8% in the African one and 8.4% in the European one. The final result was the one already mentioned in the 1980 distribution with a loss in the European demographic proportion in favour of a more dynamic Asian and African areas.

Each area was characterized by extremely differentiated situations both on account of the demographic size of the various countries and, above all, the population growth.

As far as the European area is concerned, Italy was the most populated

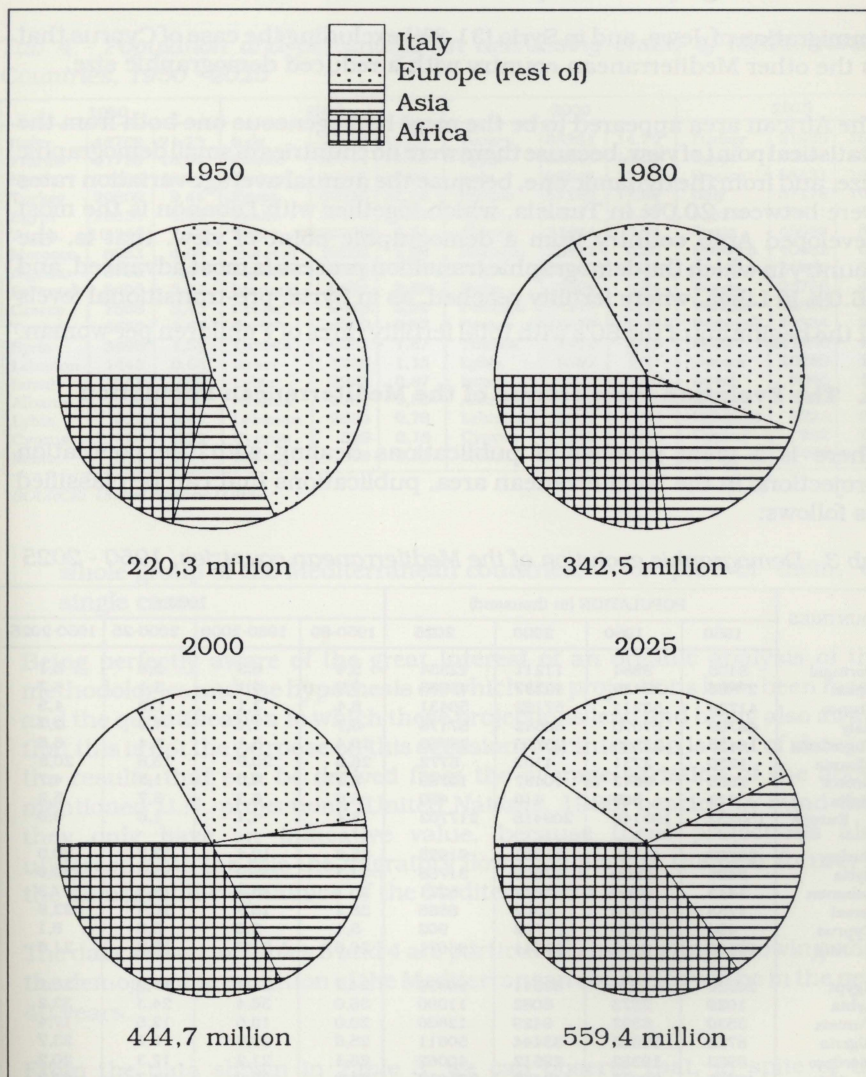


Fig 2 - Distribution of the Mediterranean population for territorial areas, 1950 - 2025

country with 57 million inhabitants and Malta occupied the last place of the list (see Table 4) with 400 thousand inhabitants; in the years from 1950 to 1980 the annual average growth rates were between 5.4% in Portugal, still characterized by emigration flows, and 26.9% in Albania which can be really considered as a rare example of closed population.

In Asia, where there is only one country of an ample demographic size, the situation was quite different because the annual average population variation rates were high especially in Israel (38.2%) due to the considerable

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immigration of Jews, and in Syria (31.3%) excluding the case of Cyprus that is the other Mediterranean country with a reduced demographic size.

The African area appeared to be the most homogeneous one both from the statistical point of view, because there were no countries of small demographic size, and from the dynamic one, because the annual average variation rates were between 20.0% in Tunisia, which together with Lebanon is the most developed Arab country from a demographic point of view, that is, the country in which the demographic transition process is most advanced, and 36.0% in Libya, where fertility reached, as in Syria, pre-transitional levels at the beginning of the 80's with total fertility rates of 7 children per woman.

5. The Evolution Perspectives of the Mediterranean Population

There is a great number of publications dealing with the population projections in the Mediterranean area, publications that can be classified as follows:

Tab 3 - Demographic evolution of the Mediterranean countries, 1950 - 2025

COUNTRIES	POPULATION (in thousand)				1000 r			
	1950	1980	2000	2025	1950-80	1980-2000	2000-25	1950-2025
Portugal	8405	9884	11211	12334	5,4	6,3	3,8	5,1
Spain	27868	37430	42237	45983	9,9	6,1	3,4	6,7
France	41736	53714	57162	58431	8,4	3,1	0,9	4,5
Italy	46769	57070	58642	57178	6,7	1,4	-1,0	2,7
Yugoslavia	16436	22299	25206	26756	10,4	6,1	2,4	6,6
Albania	1230	2731	4102	5772	26,9	20,5	13,8	20,8
Greece	7566	9643	10437	10789	8,1	4,0	1,3	4,7
Malta	312	369	418	459	5,6	6,3	3,7	5,2
Europe	150232	193140	209415	217702	8,4	4,1	1,6	5,0
Turkey	20809	44468	65351	91925	25,6	19,4	13,7	20,0
Syria	3495	8800	17809	31758	31,3	35,9	23,4	29,9
Lebanon	1443	2669	3617	5221	20,7	15,3	14,8	17,3
Israel	1258	3878	5302	6865	38,2	15,8	10,4	22,9
Cyprus	494	629	762	902	8,1	9,6	6,8	8,1
Asia	27499	6044	92841	136671	26,6	21,7	15,6	21,6
Egypt	20330	41520	63941	90399	24,1	21,8	13,9	20,1
Lybia	1029	2973	6082	11090	36,0	36,4	24,3	32,2
Tunisia	3530	6392	9429	12860	20,0	19,6	12,5	17,4
Algeria	8753	18666	33444	50611	25,6	29,6	16,7	23,7
Morocco	8953	19382	29512	40062	26,1	21,2	12,3	20,2
Africa	42595	88933	142408	205022	24,8	23,8	14,7	21,2
Total	220326	342517	444664	559395	14,8	13,1	8,2	12,5

Source: United Nations (1986)

- (a) projections made by international bodies, such as the United Nations and the World Bank, grouping all the world countries, and, therefore, the Mediterranean ones;
- (b) projections made by the National Statistic Institutes, dealing with single countries;
- (c) projections made by single experts or research bodies dealing with the

Tab 4 - Population and percentage (in decreasing order) of Mediterranean Countries, 1950 - 2025

1950			1980			2000			2025		
Italy	46769	21,23	Italy	57070	16,66	Turkey	65351	14,70	Turkey	91925	16,43
France	41736	18,94	France	53714	15,68	Egypt	63941	14,38	Egypt	90399	16,16
Spain	27868	18,94	Turkey	44468	12,98	Italy	58642	13,19	France	58431	10,45
Turkey	20809	9,44	Egypt	41520	12,12	France	57162	12,86	Italy	57178	10,22
Egypt	20330	9,23	Spain	37430	10,93	Spain	42237	9,50	Algeria	50611	9,05
Yugos.	16,346	7,42	Yugos.	22299	6,51	Algeria	33444	7,52	Spain	45983	8,22
Morocco	8953	4,06	Morocco	19382	5,66	Morocco	29512	6,64	Morocco	40062	6,64
Algeria	8753	3,97	Algeria	18666	5,45	Yugos.	25206	5,67	Syria	31758	5,68
Portugal	8405	3,81	Portugal	9884	2,89	Syria	17809	4,01	Yugos.	26756	4,78
Greece	7566	3,43	Greece	9643	2,82	Portugal	11211	2,52	Tunisia	12860	2,30
Tunisia	3530	1,60	Syria	8800	2,57	Greece	10437	2,35	Portugal	12334	2,20
Syria	3495	1,59	Tunisia	6392	1,87	Tunisia	9429	2,12	Lybia	11090	1,98
Lebanon	1443	0,65	Israel	3878	1,13	Lybia	6082	1,37	Greece	10789	1,93
Israel	1258	0,57	Lybia	2973	0,87	Israel	5302	1,19	Israel	6865	1,23
Albania	1230	0,56	Albania	2731	0,80	Albania	4102	0,92	Albania	5772	1,03
Lybia	1029	0,47	Lebanon	2669	0,78	Lebanon	3617	0,81	Lebanon	5221	0,93
Cyprus	494	0,22	Cyprus	629	0,18	Cyprus	762	0,17	Cyprus	902	0,16
Malta	312	0,14	Malta	369	0,11	Malta	418	0,09	Malta	459	0,08

SOURCE: United Nations (1986)

whole group of the Mediterranean countries, or part of them, or single cases.

Being perfectly aware of the great interest of an organic analysis of the methodologies and the hypothesis on which the projections have been made and the quantification to which these projections lead and being also aware that this is not the purpose on this occasion, our intention is that of showing the results that can be derived from the average variation of the above mentioned U.N. projections (United Nations, 1986) bearing in mind that they only have an indicative value, because these projections also underestimate the role the migratory flows will play, in the near future, in the demographic dynamics of the Mediterranean area.

The data shown in Tables 3 and 4 are particularly interesting, showing what the demographic evolution of the Mediterranean countries will be in the next 40 years.

From the data shown in Table 3, we can observe that, in spite of the progressive general contraction of the annual average variation rates, the population should continue to grow except in Italy.

As far as Italy is concerned, we can expect in 2025 a population that is lower than the one foreseen for 2000: and this is because of the low fertility rates and the hypothesis which is - according to us quite unreal - of a negative migratory settlement with the foreign countries; while, at present, in our country we observe a progressive expansion of immigration from the developing countries, including the African and Asian shore of the Mediterranean area (Golini, 1988; Manese, 1989).

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Referring to the period 2000-2025, that is the period in which the above mentioned rates are lower, there should still exist such countries as Libya and Syria with rates of more than 20%, or Turkey, Lebanon, Algeria and Egypt with rates of about 15%. The European shore countries, with the exception of Albania, should have rates lower than 4%, including the negative one in Italy, in sharp contrast with what we have observed on the African and Asian shore.

The consequences of these heterogeneities are evident if we observe the data shown in Tables 4 and 5, or Figures 2 and 3.

From a demographic point of view (see Table 4), we observe a progressive loss of importance of the European countries in favour of the Asian and African ones: the most significant cases are Italy, that was first until 1980 and will now be fourth in 2025, and Turkey and Egypt in 2025 will have first and second places on the list, with a much bigger population than France, which by then will be third.

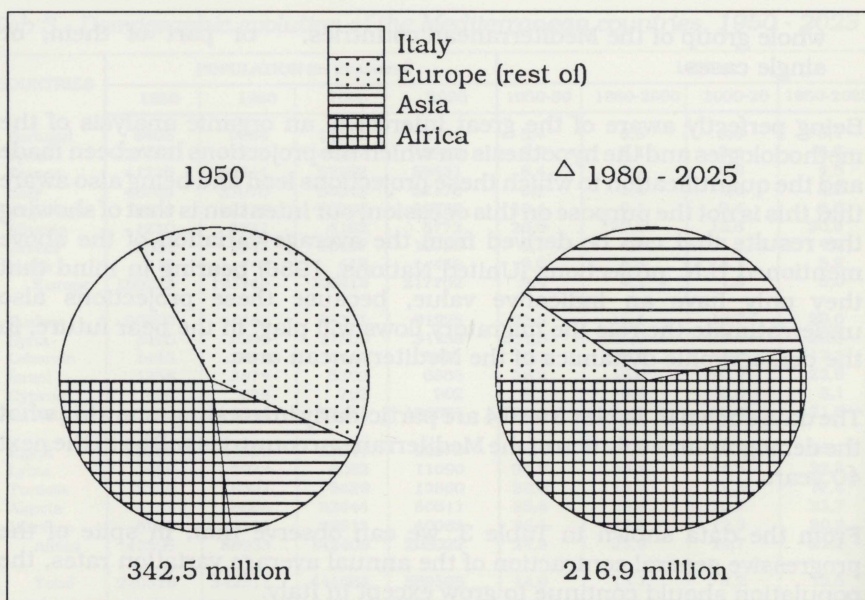


Fig 3 - Population observed in the Mediterranean area and population increase. 1980 - 2025

From the point of view of population growth, Fig. 3 and the data in Table 5 show that the population growth in the period 1980-2025 is concentrated in the African and Asian countries of the Mediterranean area, because for the European countries an increase of less than 25 million inhabitants has been foreseen, much less than the one observed in the period 1950-1980 (about 43 million).

Tab 5 - Mediterranean population percentage and increase, 1950 - 2025

COUNTRIES	PERCENTAGE				POPULATION INCREASE (in thousand)		
	1950	1980	2000	2025	1950 - 1980	198 - 2025	1950 - 2025
Portugal	3,81	2,89	2,52	2,20	1479	2450	3929
Spain	12,65	10,93	9,50	8,22	9562	8553	18115
France	18,94	15,68	12,86	10,45	11978	4717	16695
Italy	21,23	16,66	13,18	10,22	10301	108	10409
Yugoslavia	7,42	6,51	5,67	4,78	5953	4457	10410
Albania	0,56	0,80	0,92	1,03	1501	3041	4542
Greece	3,43	2,82	2,35	1,93	2077	1146	3223
Malta	0,14	0,11	0,09	0,08	57	90	147
EUROPE	68,19	56,39	47,10	38,92	42908	24562	67470
Turkey	9,44	12,98	14,70	16,43	23659	47457	71116
Syria	1,59	2,57	4,01	5,68	5305	22958	28263
Lebanon	0,65	0,78	0,81	0,93	1226	2552	3778
Israel	0,57	1,13	1,19	1,23	2620	2987	5607
Cyprus	0,22	0,18	0,17	0,16	135	273	408
ASIA	12,48	17,65	20,88	24,43	32945	76227	109172
Egypt	9,23	12,12	14,38	16,16	21190	48879	70069
Lybia	0,47	0,87	1,37	1,98	1944	8117	10061
Tunisia	1,60	1,97	2,12	2,30	2862	6468	9330
Algeria	3,97	5,45	7,52	9,05	9913	31945	41858
Morocco	4,06	5,66	6,64	7,16	10429	20680	31109
AFRICA	19,33	25,96	32,03	36,65	46338	116089	163437
TOTAL	100,00	100,00	100,00	100,00	122191	216878	339069

SOURCE: United Nations (1986)

Considering that in 5 countries (Egypt, Turkey, Algeria, Syria and Morocco) the population growth foreseen for the period 1980-2025 is more than 20 million and that most of them are already emigration countries, it is easy to observe that the excessive demographic growth of these populations will cause a more accentuated emigration propension and that part of these populations should be living in the destination countries and not in their countries of origin at the end of this period.

This consideration is confirmed by the data on the population in working age shown in Table 6: these data show that the population will grow in the Asian and African countries more than the total population growth.

The resulting increase in the labour offer that will be absorbed with difficulty in the countries of origin will become a factor that will increase the tendency to migrate.

In 2025, because of the migratory phenomena, the European population of the Mediterranean area should be greater and the African and Asian one should be lower than the data we show here, and which the European countries with a history of emigration (Italy, Spain, Portugal and Greece) will have, in the future, ethnic differentiated populations, as is already happening in Great Britain and the Netherlands.

Demographic Development in the Mediterranean Area

Tab. 6- Population in working age (in thousand) of the mediterranean countries, 1950 - 2025

COUNTRIES	P (15 - 64)				[P(15 - 64) / P(0 - W)] x 100			
	1950	1980	2000	2025	1950	1980	2000	2025
Portugal	5341	6287	7327	8022	63,5	63,6	65,4	65,0
Spain	18285	23485	27425	30076	65,6	62,7	64,9	65,4
France	27508	34247	37888	36750	65,9	63,8	66,3	62,9
Italy	30598	36843	38704	36275	65,4	64,6	66,0	63,4
Yugoslavia	10334	14770	16862	17102	63,2	66,2	66,9	62,9
Albania	665	1582	2574	3764	54,1	57,9	62,7	65,2
Greece	4884	6176	6654	6860	64,6	64,0	63,8	63,6
Malta	185	248	286	288	59,3	67,2	68,4	62,7
EUROPE	97800	123638	137720	139137	65,1	64,0	65,8	63,9
Turkey	12148	25228	4088	60750	58,4	56,7	62,6	66,1
Syria	1893	4338	9124	20687	54,2	49,3	51,2	65,1
Lebanon	844	1455	2188	3498	58,5	54,5	60,5	67,0
Israel	810	2268	3405	4471	64,4	58,5	64,2	65,1
Cyprus	294	411	511	565	59,5	65,3	67,1	62,6
ASIA	15989	33700	56113	89971	58,1	55,8	60,4	65,8
Egypt	11660	23218	39378	61263	57,4	55,9	61,6	67,8
Lybia	549	1519	3191	7014	53,4	51,1	52,5	63,2
Tunisia	1955	3431	5921	8897	55,4	53,7	62,8	69,2
Algeria	4857	9253	18683	34759	55,5	49,6	55,9	68,7
Morocco	4722	10217	18577	27583	52,7	52,7	62,9	68,9
TOTAL	137532	204976	279583	368624	62,4	59,8	62,9	65,9

Source: United Nations (1986)

6. Conclusion

The considerations developed in these pages might confirm the preoccupation about the demographic future of the Western European countries, Italy included, even considering the future demographic balance of the Mediterranean countries (Sauvy, 1987).

However, even if we are aware of the problems created by the differentiated growth of population in the near future, we would not agree with this pessimistic point of view if socio-economic programmes of cooperation between the developed countries of the European side of the Mediterranean and the developing countries of the Asian and African side take place.

First of all, a new intervention policy in the demographic field should be applied, aiming at reducing fertility where it reaches still pre-transitional levels, creating an explosive demographic growth and regular migration flows due to existing economic gaps, originating from the Asian and African side of the Mediterranean area and directed to the more developed Western European countries.

We also look forward to the spread of new initiatives such as the recent SIMED (Lebon, 1989) created by the International Labour Office, which is an observation system and information exchange between the Mediterranean Countries concerning the labour market and the international migrations.

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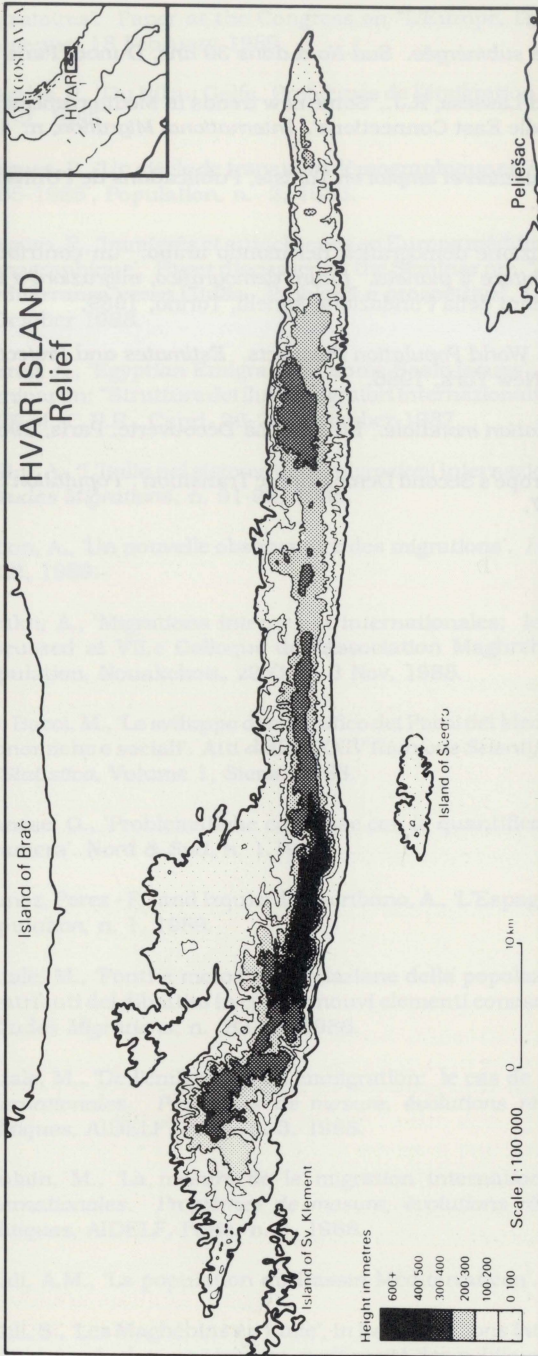


Fig. 1a- Relief map of Hvar Island, Yugoslavia

D evelopment and the Environment: A Case Study of Hvar Island, Yugoslavia.

by F.W. Carter

General Introduction

Increasing interest throughout the Mediterranean Basin in links between development planning and the environment are part of a much wider concern about the global impact of economic and social decisions on the future of our planet. There is a growing awareness of the need for greater attention to be paid to the natural environment within the context of development planning. Whilst the emphasis is on sustainable development, there has to be more appreciation of the fragile relationship between continued socio-economic growth and degradation of the natural environment. This has particular practical implications for the Mediterranean Basin, with its almost enclosed sea, where environmental degradation through air and water pollution provides serious debate for closer control of human activity within the region. Like the Black Sea, the Adriatic contains one of the 'water gates' into the eastern basin of the Mediterranean.¹ Although much remains to be done to extend our knowledge of the Adriatic world, the main outlines of its structural, physical and human history are clearly known. In recent years it has become possible to prepare regional syntheses of its constituent parts, enabling the Blue Plan, launched in 1979, to move toward fulfilling its most important function, i.e. providing realistic scenarios for sustainable, integrated social and economic development of the whole Mediterranean Basin.²

The Eastern Adriatic forms part of this complex region and contains the Yugoslav coastal province of Dalmatia, which stretches from the islands of Krk and Rab in the north almost to the Albanian border in the south and from the coast to the peak of the Velebit mountain range at around 1,700 metres above sea level. It is a province dominated by limestone mountains and the sea, in which there are few expanses of coastal plain; fertile flat land is therefore at a premium, both on the mainland and on offshore islands, where the heavily indented coastline leaves little opportunity for the location

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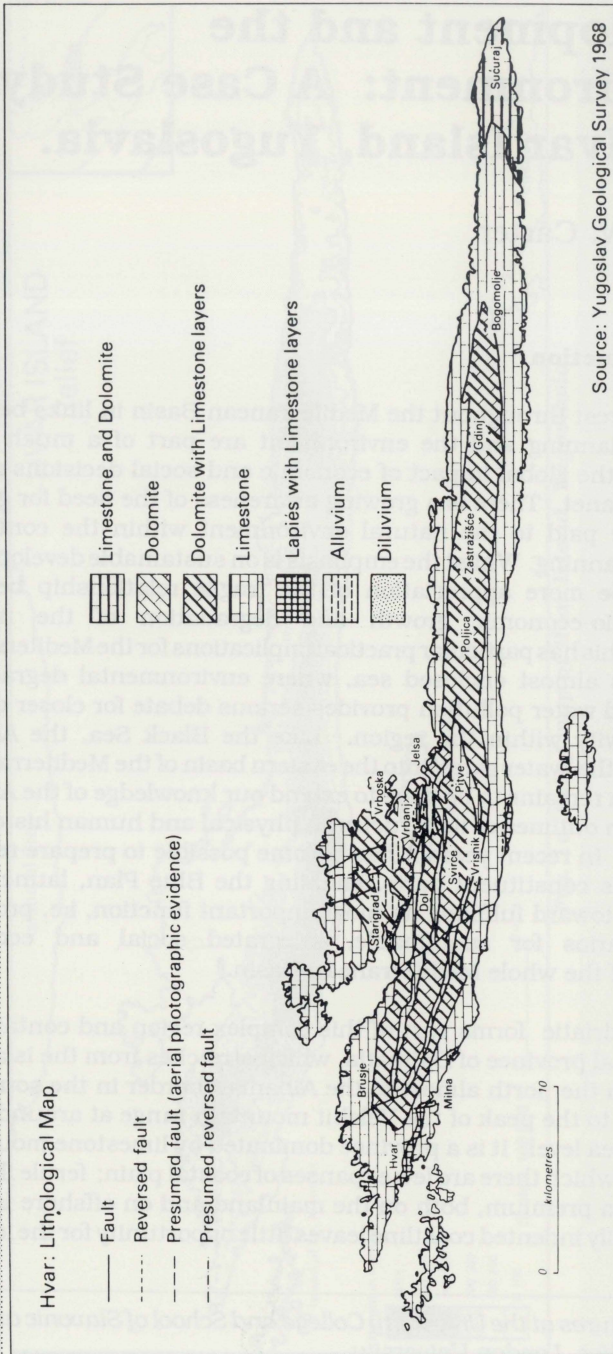


Fig. 1b - Lithological map of Hvar Island, Yugoslavia

of spacious arable lowland. It is within this context that this paper is set, against the background of one such offshore island, namely Hvar, in the central Dalmatian region. It is hoped to examine this island within the context of the Blue Plan, notably at the 'sea/littoral' level, within its two types of scenario: namely the 'trend' scenarios which view the future based on the extrapolation of past data, and the 'alternative' scenarios which explore the consequences of various development policies.³

Hvar Island: Site and Situation

Hvar is one of the largest islands in Dalmatia covering an area of 306 sq. kms (similar to Malta: 316 sq. kms), but with only 11,000 inhabitants, and is situated at its nearest point only 4 km from the Yugoslav mainland. It lies approximately on the same latitude as Marseilles in France (43 deg. 10'N) and measures 68 km from west to east; it is remarkably elongated particularly in its eastern part, its width only varies between 2-10 km (*Fig 1a*). Hvar comprises a bold, narrow mountain axis running across the island from end to end, rising to 626 m (Sv. Nikola) about 16 km from the western end of the island. The descent to the northern and southern coasts is everywhere steep but the crest of the range is bevelled for considerable distances to a comparatively level, narrow plateau surface about 330 m in altitude; the northern mountain slopes contain additional platforms at intermediate levels. Both the flat crests and these platforms provide sites for many villages. A very contrasting relief is found towards the western end of the island, north of the main mountain chain. Here lies a low fertile plain some 9 km long and about 3 km wide, known as Velo Polje. Geologically the island consists of Calcareous rocks,⁴ formed in an anticline composition with limestone in the middle and dolomites along the edges of the anticline. (*Fig. 1b*).

The island is favoured by a remarkably warm climate and equable winters; over a fifty year period, mean monthly temperature exhibited a smaller range than in any other part of Yugoslavia,⁵ and an average of only three days' frost in winter. A large part of the island supports a Mediterranean vegetation, whilst the higher crests are usually barren or bush-covered, but less elevated slopes are often quite thickly wooded. The vegetation is largely composed of evergreen pines and macchia, coupled with a profusion of aromatic and other herbs. Everywhere the soil is poorly developed consisting mainly of weathered limestone; small pockets of more fertile marls etc., are found in polje areas.

The island is rich in archaeological and historical remains dating from the Neolithic onwards (*Fig 2*), and there is evidence that some of the village sites have been inhabited since prehistoric times. Human settlement on Hvar has been increasingly investigated during recent decades ranging from finds of Neolithic painted pottery, Bronze and Iron Age burials and tumuli,

Greek and Roman colonization through to an appreciation of archival and architectural remains from the Venetian period, and the more practical results from the Austrian and French occupations of the island in the nineteenth century.

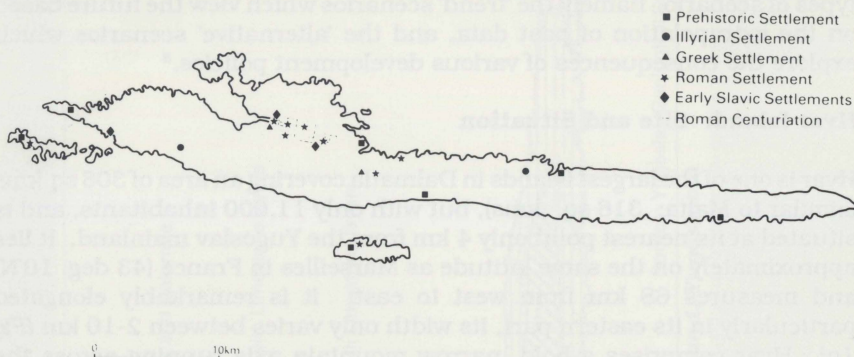


Fig. 2 - Archeological and historical remains on Hvar Island

Agriculturally the island has a typical Mediterranean production pattern, being noted for its wines, olive oil, rosemary and lavender essence, fruit and vegetables, livestock, salted fish, wood, honey and tinned sardines. There is also some boat building, marble quarrying and resin tapping, together with a plastic factory in the town of Starigrad. (Fig 3). Sheep are the only profitable livestock on the island; goats are also present but there are no cattle due to the lack of adequate grazing facilities. Tourism is the island's main industry, encouraged by the favourable climate, with Hvar known since the nineteenth century as the 'Adriatic Madeira'. Given this background, it is now possible to examine the development plans associated with the island in recent years and possibilities for future development.

The Role of Development Planning

After the trauma of the Second World War, a new era of development planning came to Dalmatia with changes in the planning system that would have been unimaginable in earlier periods. The changes introduced effected not only physical planning, but were also accompanied by new social styles and economic patterns resulting from a reformed administrative-institutional system based on the principle of self-management.⁶ Thus in examining the role of development planning on Hvar island these changes have to be understood.

The first plans for the island came with the help and supervision of the United Nations: the first plan was completed in 1968.⁷ This provided a Master Plan for the western part of the island, together with detailed plans

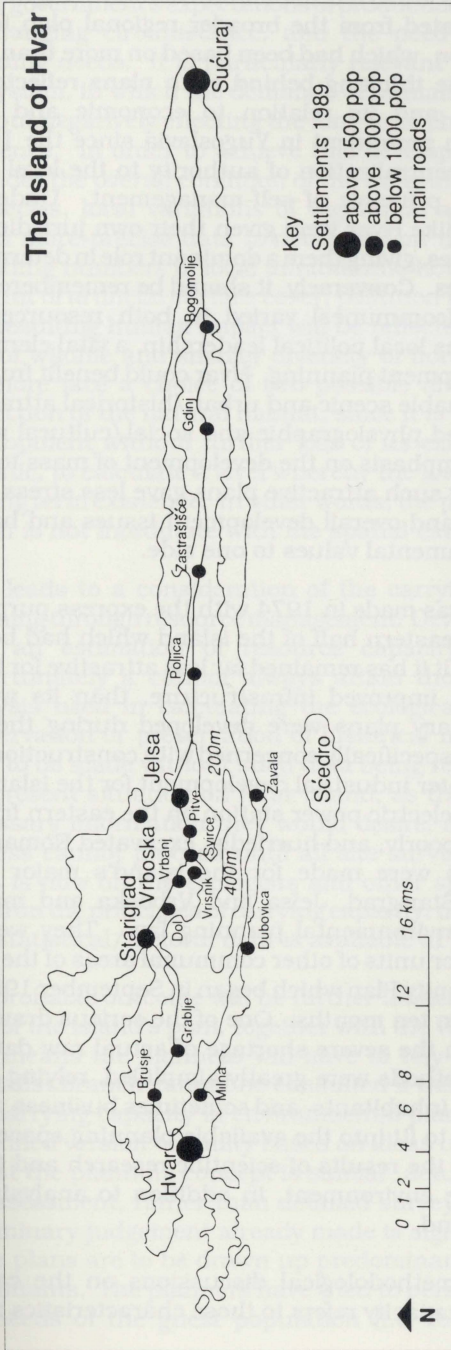


Fig. 3 - Settlements on the Island of Hvar

for Hvar town - Milna on the southern coast and the inland village of Malo Grablje.⁸ These plans emanated from the broader regional plan for the whole Southern Adriatic region, which had been based on more than thirty specific sectoral studies. The thinking behind such plans reflected the organization of government and its relation to economic and social development which had been prominent in Yugoslavia since the 1950's. Emphasis was placed on decentralization of authority to the level of the commune bound within the principle of self-management. Under this system, many of the islands like Hvar were given their own jurisdictional boundaries for these communes, giving them a dominant role in determining their own development policies. Conversely, it should be remembered that each of these sub-regions (communes) varied in both resources and physical attractions, as well as local political leadership, a vital element in any implementation of development planning. Hvar could benefit from this situation as it possessed valuable scenic and urban/historical attractions and constituted a well-defined physiographic and social/cultural region. Thus the 1968 plan placed emphasis on the development of mass tourism for the island: unfortunately such attractive plans gave less stress to the roles of urban conservation and overall development issues and had the effect of putting local environmental values to one side.

Another plan for the island was made in 1974 with the express purpose of giving more attention to the eastern half of the island which had been so neglected in the 1968 plan, but it has remained far less attractive for tourist development, in spite of an improved infrastructure, than its western counterpart. Other subsidiary plans were developed during the early 1980's, the one in 1985 being specifically concerned with construction area; this placed emphasis on greater industrial development for the island and led to the construction of an electric power station on the eastern fringe of Starigrad town, the site of a poorly, and hurriedly, excavated Roman villa. In 1988, new master plans were made for the island's major urban settlements of Hvar town, Starigrad, Jelsa and Vrboska and made in accordance with Yugoslav environmental planning law. They were the forerunners of spatial plans for units of other communal areas of the island to be embodied in the Community Plan which began in September 1989 and is expected to be completed in ten months. One of the serious drawbacks of this latter action has been the severe shortage of actual raw data. All previous spatial planning methods were greatly simplified, relying on the views of local authorities and inhabitants, and sometimes business people, which were then generalized to fit into the available planning space. Now there is much more need for the results of scientific research and factual analysis, particularly on the environment, in addition to analysing the spatial limitations of the island.

This has inevitably led to methodological discussions on the carrying capacity of space. Carrying capacity refers to those characteristics related

to the government's expectations of production, an area's ability to rehabilitate to changing circumstance, and the need to predict long term spatial planning needs. It is particularly relevant to the carrying capacity of the ecosystem, in which the demands of human development can be absorbed without negatively effecting the long term characteristics of an ecosystem's existence. In order to achieve this development, planners on Hvar must consider the overall condition of the natural habitat including the diversity of species, local variations of vegetation and other non-human factors. Much more precise data is necessary on the pressure of human activity including numbers of local inhabitants, how many cars enter an area, the amount of artificial surface cover, pollution levels and other similar factors. The resulting human impact will be reflected in loss of vegetational cover, loss of wildlife and smaller diversity of flora and fauna. Hvar's planners therefore face a choice of two possible alternatives; first to accept the protection of the natural habitat, since it is incapable of absorbing human development without further loss of its existence, or secondly and more realistic, to calculate a level whereby the loss of habitat does not endanger its long term existence. In other words, the planners must find a level of use which is not inordinate with the spatial carrying capacity of a given area.

This leads to a consideration of the carrying capacity in environmental planning through resource management. Development planning is concerned with an estimation of resource capacity, trends and future needs. Unfortunately it cannot always attain those levels of specific site data analysis used in calculating the ecological carrying capacity of nature conservation or preservation of historical monuments. In fact, decisions have to be made without such data being readily available. This is exactly the present situation on Hvar island, as the planners do not have all the necessary information they would desire, and the development planning process cannot proceed until all site surveys have been completed. The onus is now on the ecologists and other specialists to provide estimates based on the principles of carrying capacity, utilizing what existing knowledge and statistical/factorial data is available at this moment of time.

The probable outcome will be further limited by the ten month completion date of the island's plan, together with the views held by Hvar's politicians. This means the planners will have to rely heavily on estimates as every specialist branch cannot be consulted if the plan is to be finished on time. The carrying capacity in environmental planning on Hvar will have to be a simplified version of reality based on ideas used in ecological conservation. Whilst the planning concept is similar, actual application will have to rely on assessment, rather than detailed survey based on expert advice. One preliminary judgement already made is significant however, namely, that these plans are to be drawn up predominantly for the island's permanent inhabitants. The planners have tried to persuade the local authorities that the needs of the guest population (i.e. tourists) is not very significant

because the island has unique qualities worth preserving. The planners envisage a change in what the island has to offer tourists (i.e. attracting a better, more educated clientele) rather than to increase the number of hotels to suit the demands of mass tourism. This idea will not prove so appealing to the local inhabitants, dependent as they are on tourism as the island's main source of income. If the planners' ideas are accepted, then the role of environmental protection will be even more significant.

The Need for Environmental Protection

As early as 1945, the Yugoslav government passed a law on the protection of cultural monuments and natural rare phenomena: all subsequent post-war constitutions have clearly stated that all items of natural heritage would be protected by state laws. In 1971, the Yugoslav Federal Assembly adopted a document which laid down the *Foundations of Urban Policy and Land Development Planning*; here it specifically stated that the "protection and management of natural sites are an important social task" and agreed to formulate a new policy on natural heritage property. This policy maintained that "Man shall be ensured the right to live in a healthy environment, to have access to mountains, fields, shores, to have clean water and air, and to be protected from harmful substances and excessive noise. No one shall have the right by his activity to cause damage, pollute, destroy or in any other way degrade, the natural or urban environment".⁹

Nature protection and the cultural heritage are safeguarded by special laws integrated into urban and land development plans, which regulate in great details what should be preserved. In 1977, an inventory was made of all items belonging to the natural heritage which had been placed under protection on December 31st, 1976.¹⁰ This included national and regional parks, nature reserves, recreational and other protected natural sites, natural monuments (e.g. springs, watercourses, lakes, etc.), memorial monuments (memorial and historical sites) and horticultural monuments (parks, gardens, etc.). Such legal and social responses therefore equally apply to Hvar island; recent literature has re-emphasized these points when stating "The Communal Assembly of Hvar Island, with a firm resolution, takes great care that no industry endangers the island in respect of unpolluted air. Numerous significant awards have been made to the Hvar Commune in connection with ecology, which gives an even deeper meaning to the commune's achievements in maintaining an ecologically clean environment".¹¹

Yugoslavia's clearly defined environmental policy regarding the protection and management of property linked to the natural heritage, as legally defined, is unfortunately "not adequately implemented in practice, and the results achieved are not satisfactory."¹² As Violich maintains "the ecological and environmental forces and the intuitive judgement of relatively

unsophisticated people have been left aside in the interest of 'modernisation', 'development' and 'economic growth'.¹³ This often leads to architects and planners in Yugoslavia extolling this image for the sake of novelty and up-to-date designs (e.g. in house and hotel construction) rather than observing the heritage values of a site within the confines of its natural environment and the dictates of a region's cultural past.

Hvar island is no exception to this trend. Even so, the 1968 Master Plan for Western Hvar clearly states that development should be carried out in a way that ensures the protection and enhancement of natural, historical, aesthetic and other environmental values.¹⁴ It did however agree that tourism should become the main economic base of the area, with some development of agriculture and industry that was increasingly linked to the tourist market. It also stressed that the island should not stake its future on the mass tourist market. It envisaged a resident population in western Hvar of 33,000 inhabitants, three times more than the present total, capable of sustaining 43,000 tourists in peak season, with 60% in hotels, 30% in private accommodation and the rest in camping sites, hostels and weekend cottages. The number of cars should be limited to the estimated environmental capacity of 3,800; motorists should be encouraged to leave their cars on the mainland and transfer to the island by hydrofoil. It was suggested that visitors should arrive on western Hvar in the proportion of a quarter by car ferry, two thirds by hydrofoil, and the rest by passenger steamer.

Some of the plan's proposals have already been carried out. For example, a new car ferry has been established to the west of Starigrad (Vira), whilst a hydrofoil service connects Split harbour (not airport as proposed) to a few selected hotels (more were proposed) in 45 minutes. Similarly, some of the suggested spine roads, seven metres wide, connecting the four main towns (Hvar town, Starigrad, Jelsa and Vrboska) have been completed, linking them to the main arterial road which now runs the length of the island. However, certain environmental issues hinted at in the plan have yet to be resolved, particularly regarding water supply, pollution and conservation of cultural monuments.

Water supply is critical for any community, but non more so than places like Hvar island that experience up to five months drought during the long hot Mediterranean summer months. Prior to the early 1960's the whole island was dependent upon local wells, springs and reservoirs, together with what may be caught by rain gutters around houses. By the early 1960's all settlements to the west of Jelsa were served with piped water; the new system based at Jelsa was centrally placed within the main water catchment area, and able to supply much of the western half of the island by means of a new electric pump. The system was formerly administered by each of the main towns serving their area, but in the late 1960's the whole water supply was organized from the main centre, Hvar town, to reduce costs. This

entailed the construction of a tunnel from Jelsa to Zavalá on the southern coast and a water cistern in the tunnel was completed in 1969. To the east of the island the settlements remained dependent upon local supplies, because water pumping costs were seen as too high to serve villages already in decline.

The anticlinal composition of Hvar, with limestone in the middle and dolomites around the edges, allows the groundwater to flow eastward, and then northward along a transversal fault to Jelsa for collection in existing waterworks. Unfortunately, the island's average precipitation is only 722mm; there are no permanent streamflows, and due to its elongated shape, no strong currents are formed after heavy precipitation. With increasing emphasis on tourism, the greatest problem for further development is posed by limited water supplies.¹⁵ The situation is becoming increasingly serious due to the network conditions and the quality and quantity of water. Some settlements like Vrboska have their own water supply, but it has a tendency to saltiness, its hotels having to be supplied by sources from elsewhere, e.g. Jelsa. Perhaps more serious, poor pipe maintenance is allowing increasing quantities of salt water into the system, as experienced in the summer of 1989 when rainfall levels were exceptionally low.

In summer, tourist numbers swell demand; average water consumption reaches 250 litres per consumer/day, i.e. a flow of 100 litres per second, but groundwater supplies provide only 70 litres per second. A feasibility study has predicted long term water demand at 196 litres per second, i.e. another 226 litres per second or 20,000 cubic metres per day. The 1968 Master Plan foresaw this problem and suggested storing winter surplus from springs in a new dam at Dol village, but this has not materialized. Water deficiency now has to be supplemented by a submarine pipeline connected via Brac Island with the mainland. This utilizes the Cetina River supplies, already in great demand throughout Central Dalmatia, as they provide the only consistent water supply in the area throughout the year. Nevertheless this was found to be the only way to ensure sufficient quantities of drinkable water quality on Hvar from a sanitary viewpoint, particularly during the summer month when salt pollution levels are at their greatest.

Any increase in numbers of tourists places more stress on the sewerage system. The 1968 Master Plan advocated that all sewage should be piped, treated and then discharged into the sea, based on a system of linking settlements, hotels and camp sites to a minimum number of separate sewerage systems, which were to be built consistent with the island's topography.¹⁶ More isolated settlements would be provided with septic tanks. In spite of these recommendations much has still to be achieved. During the summer of 1989, raw, untreated, sewage effluent was still being ejected into the sea, in some cases like Starigrad, straight into the harbour which is part of a long, narrow, elongated bay. Furthermore, poisonous

waste from the town's local plastics factory, some of it between 20-40% in insoluble form, was also leaked into open canals leading to the waterfront.

Refuse disposal has also left a lot to be desired. Whilst the 1968 Master Plan specifically suggested a central location for refuse burning to the north of Zavalal,¹⁷ away from settlements and tourist establishments, this has not been realized. At present refuse dumps adorn the sides of main roads, e.g. Hvar town - Starigrad rout, where rubbish is used as infill for dry valleys, with the resulting bad smells and health hazards associated with such sites. In Starigrad, local refuse is burned on the nearby hillside above the town, adding smoke pollution to that already created by the chimney stacks of the local plastics factory. The prevention of tipping rubbish by local inhabitants has not been strictly enforced by the local authorities, allowing the coast and surrounding countryside to subsequently suffer.

Finally, any development must take care of the historical environment. This involves the conservation of cultural monuments as the island is unusually rich in remains from the prehistoric, ancient, mediaeval and renaissance periods. Fortunately, since tourism has been on the island, over the past century, the townscapes and landscapes have only been marginally destructive for the historical monuments. If there is to be a continuing growth of the island's tourist industry, this will encourage more building projects for hotels, restaurants, marinas and extended, improved communication networks, which in turn will pose a threat to Hvar's physical heritage. A response to this threat has led to the formation of the Hvar Project, consisting of an international and multi-disciplinary venture consisting of scientists from several European and North American institutions, whose main aim is to preserve the island's heritage in its present form.¹⁸

One of the main aims of the project is to provide scientific and specialist advice to support the island's authorities in the preparation of a cultural and ecological environmental stability programme, as an integral part of Hvar's overall economy (Fig. 4a). The island's rich heritage dates back to the Early Neolithic, when its first settlers arrived around the fourth millenium B.C. Caves (e.g. Grabceva Spilja) have yielded important information on the island's life at this time,¹⁹ followed by later Bronze and Iron Age relics connected with the Illyrian peoples, especially in the form of tumuli.²⁰ The Hvar countryside has also revealed the remarkable landscape of Velo Polje (between Starigrad - Vrboska) which deserves to be preserved and maintained in its entirety as a national park. It contains a well-preserved, large scale, hellenistic field system, emanating from the foundation of a Greek colony (Pharos) on the island at Starigrad (385 B.C.), as well as considerable number of Greek and Roman rustic villas;²¹ other areas contain much later isolated buildings such as the aristocratic summer residences dating from the sixteenth to nineteenth centuries. The urban centres also have

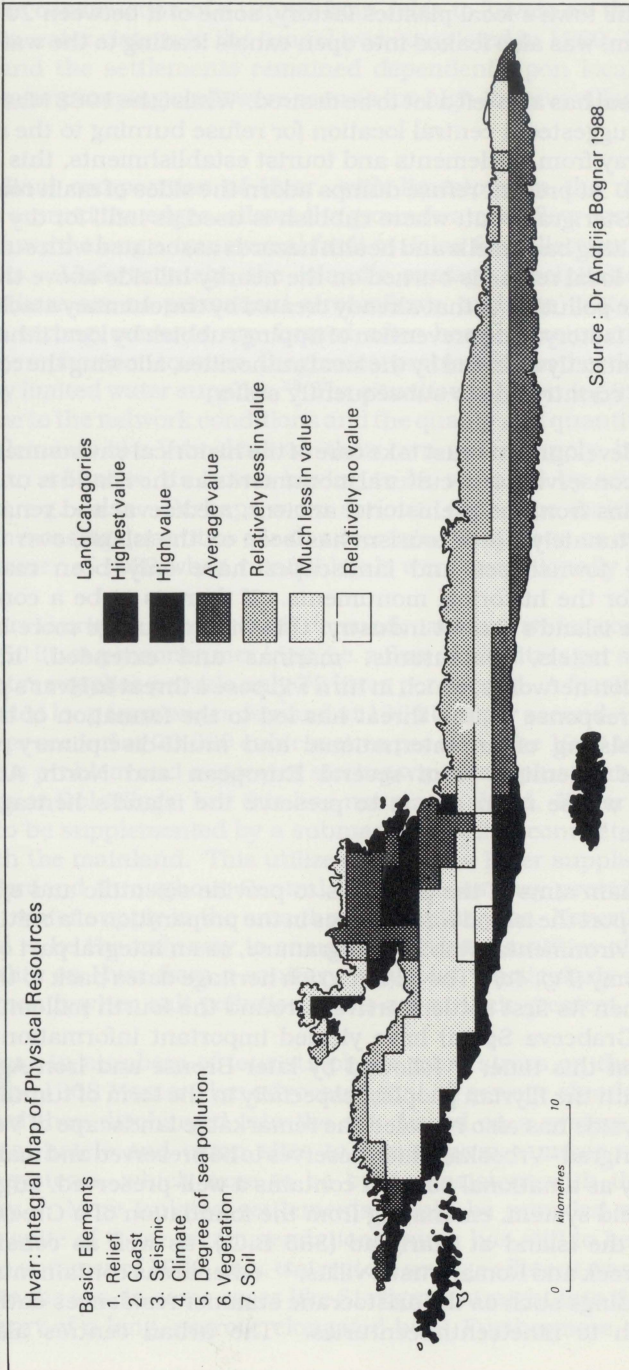


Fig. 4a - Hvar - Integral map of Physical Features

important monuments located in the large sectors of their historic buildings, while many of the villages possess significant examples of housing from renaissance to pre-modern times.

The fear of the project is that much of this priceless heritage could be lost if greater care is not taken with the island's resource management. Research by the project has already revealed circa 545 archaeological localities on the island, over twice the previous known number. More disturbing is the state of their preservation recorded by the team; of the 163 tumuli on the island, nearly a quarter have been totally destroyed, a fifth have suffered some damage, whilst a further fifth have been previously excavated; only just over a third were in a well-preserved condition. At present, the most significant destruction process results from stone robbing for building purposes, and has directly resulted in 39% of all tumuli being destroyed. Other causes included pipe laying, new road construction and agricultural clearance.²² Besides their archaeological significance, these and other early cultural monuments have economic value as major tourist attractions, which could be prepared for public viewing with little effort needed.

Another serious problem comes for the threat to build an airport on the island. Since the early 1960's Hvar Commune local officials have treasured the idea of having their own island airport. A report in 1962 extolled the virtue of an international airport on Hvar, located on Velo Polje, the island's largest area of flat land, and only 20 km. from the island's capital, Hvar town. It was planned to build a 1,200 metre runway capable of taking DC-3's, with a considerable number of airport buildings and a concrete surfaced area for serving "thousands of domestic and foreign tourists" by 1963.²³ So far this idea has not become reality, although discussion continued to rage in the local press and elsewhere on the pros and cons of its construction.²⁴ From an environmental and cultural viewpoint it would be a disaster, not only from excessive noise (denounced in the 1971 planning document), fuel discharge causing air and water pollution over such settlements as Starigrad, Jelsa and Vrboska, but also the destruction of rich archaeological remains located there and catalogued by the Hvar Project. If an airport is necessary on the island, and that in itself is debatable, then perhaps it should be located along the slightly bevelled crest (slopes of 0-2 degrees) in the eastern half of the island between Gdinj and Bogomolje, using light Canadian DASH-7 aircraft, having a capacity of 50 people for short transfer flights from Split airport on the mainland (*Fig. 4 b*). Investment earmarked for the airport would perhaps be better utilized for improving the island's water supply, pollution problems and cultural heritage, rather than a large, prestige project which has not been proved entirely necessary.

Finally, more attention should be paid to some of the island's urban cultural monuments. Again, the 1968 Master Plan called for the historic town

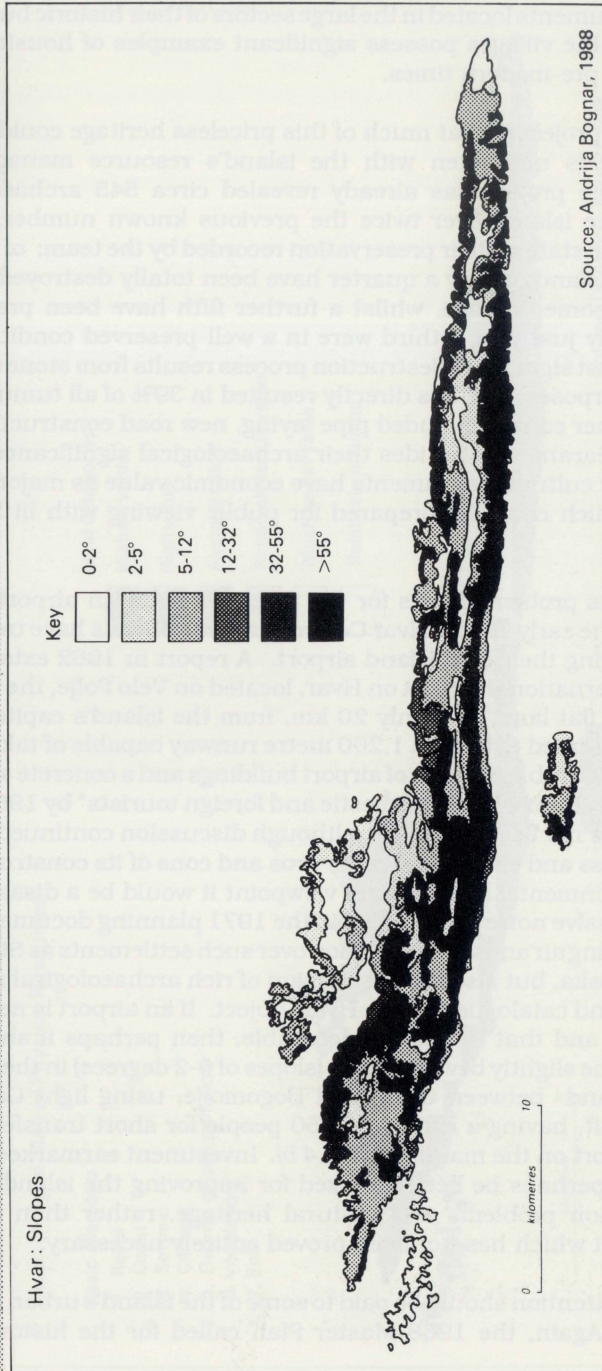


Fig. 4b - Slopes on Hvar Island

centres and villages to be preserved intact. Shops, restaurants, offices and other service places could be concentrated in town centres in order to provide an economic use for old buildings in need for restoration and repair. Furthermore, new buildings in or close to historic cores should be so designed as to enhance urban unity, and allow the surrounding natural landscape to dominate the skyline. Overall much of this has been achieved, probably more due to lack of finance than in accord with aesthetic ideals, but some places like Hektorovic's palace in Starigrad, home of the island's most noted literary figure, ²⁵ could be greatly improved by renovation.

The Future: the significance of Hvar's cultural heritage

Inevitably, this leads to the obvious question of the island's future and the role of cultural heritage. Firstly, the principle of protecting Hvar's archaeological heritage, i.e. preventing the loss of tangible and intangible components of its history, is the cornerstone for all archaeological management functions. The same arguments that are applied to preserving other non-renewable resources, e.g. natural gas, can also be applied to archaeological artifacts. ²⁶ The central aim of the Hvar Project is the analysis and interpretation of the island's historical development and natural history. The prime reason for such a concentration of international research on the island is due to its remarkably rich and diverse monuments and cultural landscape. Secondly, greater attention must be paid to the plight of many inland villages which are suffering from de-population and decline. There is a need to reappraise their role in Hvar society, but students of the rural landscape face two major problems; they must understand what is there, visible, still lived in and used, and then they must seek to identify the processes which are, and have been, at work causing change. ²⁷

At present there appear to be three options open to the planners for the development of the island. First, they can encourage the growth of mass tourism with the possible disastrous results experienced in other parts of the Mediterranean Basin, e.g. Spain. By placing primary emphasis on a mass tourist facilities programme, it can become an overpowering goal in itself, rather than a means to an end. Alternatively, sufficient emphasis could be given to the development needs of the people of Hvar's urban and rural system, by determining long-range development goals based on a perspective of past cultural heritage and assure a sounder social and economic future.

Secondly, there could be increased industrial development on the island, but this too could lead to disaster. There are a few mineral resources, e.g. stone quarrying, to provide a base for industry and everything, including energy and raw materials, would have to be imported from elsewhere i.e. mainland Yugoslavia, or abroad. Agricultural development is limited, with nothing at present being produced for the export market. One possibility

is the model of two employments popular throughout much of the Mediterranean, whereby families have some members working abroad, e.g. 'gastarbeiters' in West Germany, and others tend the local farm plots. This may stem the rural exodus, with villages geared to supplying Hvar's tourist market.

Thirdly, and probably the most attractive idea, would be to develop cultural heritage tourism which would cater for the more educated, sensitive and possibly wealthier clientele, who demand more from their vacations than just sun, sand and sea. This idea would involve initially considerable investment, to provide the backcloth for would-be tourists to appreciate the wealth of the island's cultural background. First, it would involve investment in the architectural heritage on the island. In Yugoslavia, the value of architectural heritage is divided into three categories: category I includes those of broader national and international importance (entered in the UNESCO Register of World Heritage) and many Dalmatian towns, including Hvar, have been considered for inclusion in the inventory of the world's cultural properties;²⁸ secondly, category II, those of national and lesser cultural significance, of which numerous examples are found on the island; and thirdly, category III, all other cultural properties which are of sub-regional or local significance.

This latter group may secondly invite investment into the numerous inland villages scattered throughout the length of the island, many in need of repair and restoration. One practical suggestion would be to develop these villages, by preserving their natural architecture, which in turn would provide a better tourist environment than the hotel complex. Regeneration of local agriculture would be made through tourist demand, whilst improved road networks would give visitors easy access from the inland villages to the coast. The 1990 Master Plan envisages creating new villages near to urban settlements, involving considerable expense in providing a completely new infrastructure. The older villages already have water, sewage, electricity, etc., and would demand much less finance for improvements. There would also need to be stricter control on new second home construction in these old villages, to avoid present practices of illegal construction, and the use of modern, look-alike, mundane architectural designs found among developments already made around towns like Starigrad.²⁹ Stricter laws should also be enforced against dwellings built along the coastline. For example, the 1969 Master Plan suggested parts of the coast should be free of such dwellings, e.g. between Jelsa and Vrboska, yet twenty years later there is an almost continuous line of buildings between these two settlements.

Thirdly, investment could be forthcoming for the creation of a permanent base for international fieldcourses and research teams working on the island. Such an establishment could provide facilities for exhibitions and other educational displays, which would serve both the island's resident

population and the considerable seasonal tourist numbers. At present, liner cruises en route from Venice to Dubrovnik anchor two kilometres off Hvar, for lectures about the island. Such tourist potential could be brought ashore, driven to a cultural heritage centre and receive instruction there, providing a much more realistic view of the island's history. If a cultural heritage centre is to materialize, this would demand the creation of a consortium consisting of local tourist organizers, republic and/or Yugoslav representatives, and a major source of external funding, e.g. European Economic Community. Such negotiations are already in their early stages, but it remains to be seen if plans reach fruition.

Conclusion

The foregoing pages have outlined the role of development and the environment on an Adriatic island, blessed with distinctive natural beauty, a long history of human activity and a wealth of cultural heritage. Development proposals through former and present Master Plans reveal some need for careful environmental protection, which has not always been meticulously followed in the race for economic growth through the attraction of both domestic and foreign tourists. The subsequent emphasis on 'modernization', with new hotel complexes, marinas and the whole tourist infrastructure, has tended to push environmental degradation problems into the background.

Increasing fears throughout the Mediterranean Basin of growing environmental abuse, and reiterated in the Blue Plan, have refocused attention in Hvar on the dilemma between more economic development, or a safer environment in which to live. Questions about the latter have emerged as evidenced by poor water supply, increasing air and water pollution, the possible demands of a new airport, and the threat to the island's cultural monuments. Contemporary planners reject the growth of mass tourism, stressing the need to improve the life style of the local inhabitants, but this does not solve the necessity for economic activity on Hvar, if emigration from the island is to be repulsed. Neither industrial development nor large-scale agricultural methods provide a satisfactory solution to the problem. Perhaps the best answer is to develop selective tourism, which appeals more to the educated and often wealthier type of visitor, who would appreciate the variety of cultural experiences the island has to offer. Such ventures have proved successful elsewhere, as in the case of the city of York in Britain. This is the hope of the Hvar Project, which is trying to revitalize the island's cultural heritage, advocating better resource management methods within the spirit of the Mediterranean Action Plan. This would ensure future would-be tourists will have something to see and appreciate when they arrive on Hvar.

Finally, one must not forget the fragility of island economies, and the danger

in the case of Hvar may emerge from too much dependence on the mass tourist market. By its very nature mass tourism is a fickle phenomenon, which can disappear as quickly as it arrives. Selective tourism is less volatile, and though much more elitist will always guarantee visitors searching for new experience in the Mediterranean Basin, the cradle of so many cultures and civilizations. If development and the environment are to work hand in hand on Hvar Island, considerations outlined above have to be taken seriously, not only by the Yugoslav planners and local politicians, but also by the islanders themselves.

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Acknowledgements.

I would like to thank the various members of the Hvar Project for their help and encouragement in preparing this paper and to acknowledge with grateful thanks the receipt of a Hayter Travel Grant awarded by the University of London.

The natural environment of the Maltese Islands: human impact and conservation

by Patrick J. Schembri

The Geographical Setting

The Maltese Islands are a group of small, low islands aligned in a NW-SE direction and located in the central Mediterranean at latitude: 35° 48'28" - 36°05'00" North and longitude: 14°11'04" - 14°34'37" East. They are situated on a shallow shelf, the Malta-Ragusa Rise, part of the submarine ridge which extends from the Ragusa Peninsula of Sicily southwards to the African coasts of Tripoli and Libya. The islands lie approximately 96 km from Sicily and 290 km from North Africa. The Maltese Archipelago consists of three inhabited islands: Malta, Gozo and Comino and a number of small uninhabited islets. The table below gives the land area of the various islands:

Malta:	245.7 km ²
Gozo:	67.1 km ²
Comino:	2.8 km ²
St. Paul's Islands:	10.1 ha
Cominotto:	9.9 ha
Filfla:	2.0 ha
Fungus Rock:	0.7 ha

Geologically, the islands are composed almost entirely of marine sedimentary rocks, mainly limestones of Oligo-Miocene age, capped by minor Quaternary deposits of terrestrial origin. The five main rock types are (in order of decreasing age):

- Lower Coralline Limestone
- Globigerina Limestone
- Blue Clay
- Greensand
- Upper Coralline Limestone.

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Maltese soils are characterized by their close similarity to the parent rock material, their relatively young age, the ineffectiveness of the climate in producing soil horizon development, and the great importance of human activities in modifying them.

Erosion of the different rock types gives a characteristic topography. Lower Coralline Limestone forms sheer cliffs which bound the islands to the west; inland this rock type forms barren grey limestone-pavement plateaux on which karstland develops. The Globigerina Limestone, which is the most extensive exposed formation, forms a broad rolling landscape. Blue Clay slumps out from exposed faces to form c.45° taluses over the underlying rock. Upper Coralline Limestone forms massive cliffs and limestone pavements with karstic topography similar to the Lower Coralline Limestone.

Both main islands are tilted seawards to the northeast. There are no mountains, the highest point on Malta is only 253m above sea level; the highest point on Gozo is 191m. There are also no lakes, rivers or streams but only minor springs.

Characteristic topographic features of particular ecological importance are the *rdum* and *widien* (singular *wied*). *Rdum* are near vertical faces of rock formed either by erosion or by tectonic movements. Their bases are invariably surrounded by screes of boulders eroded from the *rdum* edges.

Because of the shelter they provide and their relative inaccessibility, the *rdum* sides and boulder screes provide important refuges for many species of Maltese flora and fauna, including many endemics. *Widien* are drainage channels formed either by stream erosion during a previous (Pleistocene) much wetter climatic regime, or by tectonism, or by a combination of the two processes. Most *widien* are now dry valleys, that is, they only carry water along their watercourse during the wet season; a few *widien* drain perennial springs and have some water flowing through them throughout the year, attaining the character of miniature river valleys. By virtue of the shelter provided by their sides and their water supply, *widien* are one of the richest habitats on the islands.

The climate of the Maltese Islands is typically Mediterranean. The average annual precipitation is 529.6mm (mean for period 1854-1986). Rainfall is highly variable from year to year; some years are excessively wet while others are extremely dry (extreme minimum for period 1854-1986, 191.3mm; extreme maximum for period, 1031.2mm). The seasonal distribution of rainfall defines a wet period (October to March with c.70% of the total annual precipitation) and a dry period (April to September). Air temperatures are moderate (mean annual temperature for period 1951-1986, 18.5°C; mean monthly range, 12.3-26.2°C) and never fall too low for adequate plant growth. Evapotranspiration is high and accounts for between 70-80% of the total annual precipitation. Only some 16% of the rainfall infiltrates into the

substratum and can be used by vegetation.

Maltese Habitats and Biota

It is thought that originally the Maltese Islands were covered by climax Mediterranean sclerophyll forest, dominated by Holm Oak (*Quercus ilex*) and Aleppo Pine (*Pinus halepensis*), with maquis scrubland and garigue communities in places where edaphic factors and exposure prevented climax forest from developing. Much of the natural vegetation was cleared by the early Neolithic settlers to provide land for agriculture and habitation. Currently there are only remnants (occupying only a few tens of square metres) of the original climax woodland. Other wooded areas on the islands have been planted by man.

Maquis communities occur in small patches in sheltered situations, as for example on the sides of the deeper *widien*, at the bases of *rdum* and amongst the boulder screes surrounding them. Maquis also develops in very small patches of a few square metres around Carob (*Ceratonia siliqua*) and Olive (*Olea europea*) trees planted round the periphery of fields. Hilltops, cliff verges, the edges of *widien*, coastal karstland and other exposed ground support garigue communities of small perennial bushes, geophytes and annuals. Where this has been degraded, steppic communities dominated by grasses (Gramineae) develop. Garigue and steppe are the most widespread natural vegetational communities on the Maltese Islands and show many different subtypes, amongst which is a maritime garigue/steppe dominated by halophytes and xerophytes. Erosion of the Blue Clay produces clay slopes which support a distinctive vegetation dominated by grasses of which the most important is Esparto Grass (*Lygeum spartum*). Other minor habitats include freshwater marshlands, saline marshlands, sand-dunes, rainwater pools, cliff-sides and caves.

Additionally, human activities have created a variety of habitats such as fields, gardens, road verges and land cleared of the natural vegetation cover for a variety of purposes. Of these, those not under active management become invaded by a flora of weed species.

In spite of their limited land area and habitat diversity, and the intensive human pressure on the natural environment, the Maltese Islands support a rich and diverse biota, certain elements of which are of particular scientific and cultural importance. For example, there are some 1000 species of flowering plants and an equal number of lower plants, some 60 species of freshwater and terrestrial molluscs, more than 4000 species of insects, one amphibian, nine terrestrial reptiles, some 13 resident, 57 regularly visiting and 112 migrant birds, and some 21 species of mammals. A relatively large number of species of plants and animals are found in the Maltese Islands only and nowhere else in the world. These include some 21 flowering plants, 17 molluscs, 17 butterflies and moths, more than 25 beetles, some 20 other

invertebrates and one reptile.

Human Impact

The islands have been inhabited since about 5000 BC. The present population is 345,418 (1985 census) distributed as follows: Malta, 319,736; Gozo, 25,670; and Comino, 12. The overall population density is 1095 per km² (Malta, 1301 per km²; Gozo, 302 per km²; Comino, 4.3 per km²). The growth rate is 0.9% per year (1985 statistics).

Built-up areas (residential and industrial) occupy c.16.0% of the island of Malta and c.10.1% of the island of Gozo (1985 statistics). There are 1463 km of roads and 112,827 vehicles giving a density of 358 vehicles/km² (1986 statistics). The only airport, at Luqa, covers an approximate area of 3.45 km². Registered agricultural land covers c.38% of the islands' area (1985 statistics). Local laws of inheritance subdivide land equally among offspring, resulting in fragmentation of agricultural land; 67.7% of holdings (12,173) are under 1 ha in area (1983 statistics).

The resident population is augmented by substantial tourist arrivals which have tended to increase over the years as evident from the table below:

<i>Year</i>	<i>Tourist arrivals</i>	<i>Year</i>	<i>Tourist arrivals</i>
1970	170,853	1980	728,732
1971	178,704	1981	705,506
1972	149,913	1982	510,956
1973	211,196	1983	490,812
1974	272,516	1984	479,747
1975	334,519	1985	517,864
1976	339,537	1986	574,189
1977	361,874	1987	745,943
1978	477,741	1988	783,846
1979	618,310	1989	828,311

The first settlers on the islands cleared the land for agriculture and used wood for fuel and for construction. Concurrently, these settlers introduced sheep and goats which prevented the trees from regenerating through their grazing activities. This process of deforestation has continued and has resulted in the almost total destruction of the native forests and most indigenous trees; all present day wooded areas have been planted by man in relatively recent times.

Much of the land area of the island is given over either to agriculture or to buildings and roads (see above). Some agricultural land has in recent years been given over to other uses, mainly for buildings (registered agricultural

land fell from c.56% of the islands' area in 1957 to c.45% in 1968 to c.38% in 1985).

Globigerina Limestone is quarried for use as a building stone while Coralline Limestone is quarried for use as spalls. Many of the old quarries have been worked out and abandoned without any reclamation. New quarries are being established, in some cases in ecologically sensitive areas, such as on coastal cliffs.

The coasts, particularly sandy beaches which constitute only 2.4% of the Island's coastline, are under high human pressure due to their recreational value. Most of the local population makes heavy use of the coasts during the hot summer months while tourism adds to this pressure, both directly due to use of the coasts by tourists, and indirectly due to the building of tourist facilities on the coasts.

Much agricultural land is on sloping ground which is terraced with retaining walls made of limestone rubble. Many of these rubble walls have fallen into disrepair with a concurrent increase in soil erosion. Most of the agricultural land is not irrigated, which leaves the soil bare of vegetation during the dry period of the year, leading to accelerated erosion. Additionally, during the transition from the dry to the wet season, short but very heavy rainstorms are common; these lead to increased runoff and erosion. Loss of soil through runoff is accentuated due to the large number of roads which provide an unimpeded channel to the sea for storm water.

Until very recently the islands' water supply depended almost entirely on rainwater percolating through the porous limestone rock and accumulating in aquifers from where it is pumped. The largest aquifer (which until recently supplied c. 95% of the total water used) is the Main Sea-level Aquifer which consists of a Ghyben-Herzberg lens of freshwater floating on denser saline water in limestone rock at sealevel. The other aquifers of importance are the Perched Aquifers consisting of rainwater trapped in the permeable Upper Coralline Limestone due to the underlying layer of Blue clay which acts as an aquiclude. Water from the Main Sea-level Aquifer is used principally for domestic supply while that from the Perched Aquifers is used mainly for industry and agriculture. Pre-1983 this natural supply was supplemented by seawater multi-flash distillation and, from 1983, by desalination of seawater by reverse osmosis. A small sewage water recovery plant supplies water for irrigation.

There is no problem of contamination of water sources by industrial pollutants, however there are problems with high levels of chlorides, nitrates and total hardness. Chloride contamination results from overpumping from the Main Sea-level Aquifer, resulting in diffusion of the underlying saline water into the Ghyben-Herzberg lens. Nitrate levels are

rising in some areas, most probably due to contamination by agricultural fertilizer runoff. High total hardness is due to the limestone strata through which the water percolates.

Water seepage from the Perched Aquifers wherever the Upper Coralline Limestone/Blue Clay interface is exposed, gave rise to so called High Level Springs which drained into *widien* watercourses. Many of these springs flowed all year round, albeit with much reduced flow in the dry period. Many of these springs have now been tapped to feed into the national supply network with subsequent loss of the habitat they provided. A programme of small dam construction across the *widien* watercourses, aimed at reducing flow along these and at retaining water in the *widien* for longer periods to allow increased infiltration and to supply water for irrigation, has provided additional freshwater habitats in the pools that form behind the dams.

One effect of the intense human pressure on the natural environment has been that over the years a number of indigenous species of wildlife have become extinct while others are endangered or threatened in various ways, as detailed in the table below:

Group	X	E	V	R	I
Tracheophyta	80	55	21	100	5
Bryophyta	0	0	0	33	3
Crustacea	0	2	2	8	2
Mollusca	2	11	7	5	2
Odonata	0	0	1	1	0
Dictyoptera	0	0	0	2	0
Orthoptera	1	0	2	5	0
Dermaptera	0	0	1	0	0
Hemiptera	0	0	0	1	4
Trichoptera	0	0	0	2	0
Hymenoptera	0	1	6	5	0
Lepidoptera	7	1	11	9	4
Coleoptera	11	0	37	64	48
Amphibia	0	0	1	0	0
Reptilia	0	0	11	0	0
Aves	0	10	9	2	0
Mammalia	0	0	7	6	3

The number of extinct and threatened species of Maltese biota. Only those groups for which reliable data exists are included and only freshwater and terrestrial forms are considered. The status classification used is the same as that employed by the International Union for the Conservation of Nature and Natural Resources (IUCN) in its Red Data Books: X = extinct, E = endangered, V = vulnerable, R = rare, and I = indeterminate.

Recent Developments

Many local species are endangered because of habitat destruction as has been discussed above. The underlying cause of this problem is haphazard development, where projects are approved on an *ad hoc* basis without reference to a national land-use and land-zoning plan. The authorities have for many years been lobbied to carry out a landuse survey of the Maltese Islands and to introduce modern land-zoning legislation which defines which areas may be developed for housing, industry, tourism etc., and which should not be developed for various reasons, including environmental considerations. A variety of proposals and draft legislation relating to landuse planning and zoning have been prepared since the mid-1940s when the Government of the day was advised to introduce a comprehensive Town Planning Ordinance and to set up a Town Planning Commission for the Maltese Islands, and a white paper was issued. However, no national plan was ever produced nor a centralized planning authority instituted.

In June 1988, the Maltese Parliament passed The Building Permits (Temporary Provisions) Act 1988 which *inter alia* binds the Minister responsible for the development of the infrastructure to draft a Structure Plan for the Maltese Islands within two years (i.e. by June 1990). The Structure Plan is defined to be:

"a written statement...formulating the national Planning Policy and general proposals in respect of the development and other use of land including measures for the improvement of the physical environment and the management of traffic, and interpret the relationship of national policies in terms of physical and environmental planning in so far as these policies concern the integration of the economic, social and environmental policies"

[Act X of 1988 Section 4(3) (a & b)]

The Structure Plan project is financed by the European Economic Community and is entrusted to a consortium of international planning consultants selected after a call for tenders.

As part of the Structure Plan, a Preservation and Conservation Plan based on recommendations made by UNESCO and the Council of Europe is to be formulated. The Preservation and Conservation Plan is to include an inventory of the natural and cultural heritage of the Maltese Islands and to designate areas for protection according to a number of criteria, one of which is:

"areas considered to form part of Malta's natural heritage which are identified for protection as having outstanding value from the point of

view of aesthetics, science, conservation or natural beauty"

[Structure Plan Brief]

A commission to be responsible for the Preservation and Conservation Plan has been set up. This commission is intended to act as a focal point in coordinating the compilation of information as regards the plan. It will also analyse the information collected and determine the extent of protection to be afforded each site.

ACKNOWLEDGEMENTS

The author is indebted to the following persons for information supplied and other help: Alfred E. Baldacchino, Deborah Chetcuti, George Cilia, Edwin Lanfranco, John A. Schembri, Stephen Schembri, Frank Ventura.

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"Journal of Institute of Social Sciences" (twice a year)

RESEARCH PROJECT

ISPRON has submitted the following Research Project to be published in the Mediterranean Social Sciences Network Newsletter. Those interested in the project could write directly to Patrizia Manduchi, Istituto di Studi e Programmi per il Mediterraneo, Nuovo Grattacielo, Casella Postale 81, Sassari 07100, Italy. Tel: (079) 93.75.64.

Does a margin of extensibility of the idea of Europe exist?

Research Programme

The study of human peopling of the Mediterranean area and reconstruction of the history and biological structure of populations.

The biological reconstruction of populations starts from the study of diachronical variations of somatic, genetic, demographic peculiarities, analyzed in connection with the natural and anthropized environment.

Analysis of the importance of anthropical intervention on natural environments of the Mediterranean area and knowledge of the structure and dynamic of vegetable and animal cenosis.

In a first stage of the research the historical topography of Asia Minor and of the neighbouring islands will be traced to point out the stages of recent transformations and to compare them with the past. It will be possible, hence, to draw the lines of the development trend of this area.

The map of confessional, economical, regional tensions of the area allows to establish the limits of the possible integration and to single out the obstacles to dodge round of, in the correlation of different entities.

Finalization

1. Predisposition of an anthropic cognitive basis as introduction to a project



Does a margin of extensibility of the idea of Europe exist?

of integrated interventions both economical-industrial and economical-ecological.

A project for the realization on Aegean coasts of a faunistic, floristical, ecological park whose protection could be entrusted to E.E.C and constitution of an inter-university association collecting several specializations (historical, geographical, biological, chemical, anthropological, economical, etc.). It will contribute to formulate an amplification project of the idea of Europe.

2. Establishment of a documentation centre and of a data-bank with a connected school for Documentarists that are able to move between bibliographical and documentary sources in the major languages.

Sintetically, the hypothesis of this research is to establish a scientific multidisciplinary laboratory characterized by countless cultural and diplomatic reflexes, that compares the Middle East pressure towards Europe, a cultural and European cultural basis in a middle and very sensible area, in equilibrium between East and West.

Biogeography Subproject

The study of human peopling in the Mediterranean area and the reconstruction of history and biological structure of populations is particularly interesting in the general context of this research project.

The paleoanthropologic, paleoecological, paleodemographic and historical-demographic aspects will be discussed.

Biological reconstruction of populations will be obtained with the study of diacronical changes of somatic, genetic, demographic, epidemiologic characteristics with respect to natural and anthropic environments.

The outcome offers applied prospects in preventive medicine and in territorial programming, that could create a social kind of utilization.

The second qualificative aspect of the project consists of "weighing" the importance of anthropic interventions on natural environments with respect to historical and present aspects as well as to the future.

Infact, only a serious and investigated study, through the alterations of vegetable and animal colonies, could avoid the heavy consequences that are already above the horizon.

This is particularly true in the Mediterranean region, exposed to intense processes of anthropic interventions from remote epoch.

It is necessary, therefore, to know not only the meaning of deforestation of a mountain, cultivation of semidry steppes or damp land reclamation under floristic and faunistic aspects, but it is also important to know the possible immediate and mediate repercussions on surrounding ecosystems and, consequently, on man.

To study these alterations we need to know structure and dynamics of vegetable and animal cenosis. Numerous scientific problems could find adequate solutions and suitable placing in this context, with applicable turnovers, regarding the utilization and preservation of natural resources.

Among these problems, the study of:

- medicinal plants of the Mediterranean area with an ancient or present utilization;
- ancient pastures and the problem of their better utilizations or reconversion;
- exploitation and degradation of the woods with regards to the fire problem;
- environmental impact to the big agricultural transformations and of hydraulic regimens;
- marginal lands and the problem of their recovery.

It is also important to study the present kind of anthropic impact, environmental pollution both modern and industrial, which is more extensive and dangerous than in the past.

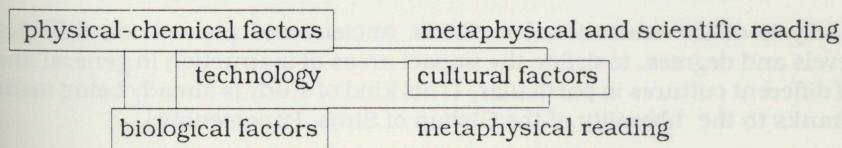
Studying this problem is fundamental for inventory and preservation of environmental resources. Among these we can include water, air and ground excluded until now from the number of natural goods, for it was thought they were unlimited.

Biology Subproject

(biological factors and human environments)

Cultural factors are of great importance in the concept of environment, when it is related to man. There are deep interactions between physical-chemical-biological environmental factors (the only prominent ones for life other than man) and cultural ones.

We can resume them, approximately, in the following flow chart:



Does a margin of extensibility of the idea of Europe exist?

In this flow chart, biological factors are considered separately from physical-chemical ones because man clearly recognizes them as they are, although their reading would be finally done as for physical-chemical entities, in order to scientific knowledge.

Recently, scientific reading is highly brisk and an intense circuit among scientific reading, culture formation and technology has been established.

The study of this circuit presents the means that explain how science, culture and technology mutually influence and how they become characteristics of human environment.

Biological factors of human environment and biotechnologies particularly involve man because of the changes that they can possibly bring about to the concept of man himself and about his biological nature.

Before becoming object data, these eventualities involve consequences by the single fact that they are included in the number of possibilities.

History Subproject

In a first stage of the research the historical topography of Asia Minor and of the neighbouring islands will be traced to point out the stages of recent transformations and to compare them with the past. It will be possible, hence, to draw the lines of the development trend of this area. The map of confessional, economical, regional tensions of the area allows to establish the limits of the possible integration and to single out the obstacles to dodge round of, in the correlation of different entities.

Predisposition of an anthropic cognitive basis as introduction to a project of integrated intervention both economical-industrial and economical-ecological will be the finalization.

Methodology. Cognitive research of the available archives, beginning from the National Archives of Istambul, progressing to the South, on the coasts and in the Aegean islands of the East Sea with a particular cure to Cyprus for its very delicate function of support in Middle East area. Gathering of available data in the Chamber of Commerce, in the port agencies of Turkish, Greek and Cypriot state bodies for a comparison with the historical dynamics.

Analysis of the educational methods, ancient and present, on different levels and degrees, to define the impact areas of instruction in general and of different cultures in particular. (This kind of study is already being made thanks to the liberality of the Bishop of Siros, Papamenolis).

Architecture Subproject

Architects, town-planners, territorial planners are interested in:

- transformations caused by man with the building and the determination to give shape and structure to town and territory;
- promoting studies and researches concerning materials, equipments, rules and development schemes pertinent to environmental formation with respect to territory, residence and green areas;
- applied technology;
- new machines and fire preventive systems in environments such as wood, bush and Mediterranean cultivations.

Psychiatry and Science of Behaviour Subproject

The connection between climatic ambient seasonal fluctuations and psychiatric suffering will be studied. Working environment will be examined with respect to its psychopathology. Epidemiology studies will complete the research.

Psychology and Sociology Subproject

Psychologists and sociologists will study the interconnections and reciprocal influences between man and environmental components besides the problems (of a conscience) of "environmental ethics".

Announcements

ENEMY IMAGES AND PEACE EDUCATION

The Peace Education Programme through the Social Sciences Network of the Foundation for International Studies is launching an international project entitled Enemy Images and Peace Education. Directors and Coordinators of Institutions within the Social Sciences Network and other academics are invited to participate in this long-term programme of studies. The objectives are (a) to focus on the multidimensional problem of 'enemy images' with particular reference to those prevailing between Euro-Mediterranean countries and (b) to plan alternative economic, social, political and cultural strategies for the development of attitudes conducive to unprejudiced openmindedness and cooperation between European and Mediterranean countries.

We would like to know whether one or more members of your Institute are interested in this venture. Our plans are to send out upon request a brief description of the project with a call for short papers on the topic. An international working group (EIAPE) will be set up to coordinate the programme.

For further details please contact:

Dr. James Calleja
Coordinator Peace Education Programme
Foundation for International Studies
St. Paul Street
Valletta.

Tel: 234121/2, 224067

TLX: 1673 FOUND MW

Fax: 230551

PEACEFUND CANADA

Peacefund Canada supports educational activities in Canada and other countries which seek to inform, educate and mobilize public opinion about peace, equitable development and global security.

The Fund supports projects that are likely to become self-sustaining, and those that incorporate study and action within the educational process.

Peacefund is an independent fundraising and granting organization. The Fund is self-managed, with a board of Directors primarily chosen from the three sponsoring organizations, the International Council for Adult Education, Canadian Council for Adult Education and L'Institut Canadien d'Education des Adultes.

Donors can choose to contribute financially by donating directly to current Peacefund Projects, or to an endowment account, or by adopting a specific project.

For more information about Peacefund Canada, please write to:

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A MEETING OF THE WORLDS

Joensuu - Finland, June 19-23, 1990

Artists and performers from all parts of the world will be gathering in Finland, in the city of Joensuu for the 1990 Meeting of the Worlds Festival. It seems natural that this meeting take place in a neutral country on the border between the East and the West.

Among the international events scheduled are:

- concerts of both symphonic and popular music
- concerts featuring chamber music
- solo concerts
- dance and theatre performances
- street theatre
- art exhibitions
- the final stage of an international peace-related film competition
- discussion among artists, journalists, peace and ecology activists and researchers.

The final concert will take place on the border between Finland and the Soviet Union, in a virtually untouched, vast expanse of forest land.

The organizers cordially invite the students of film schools and similar institutes to participate in **The International Competition for Documentary**

Announcements

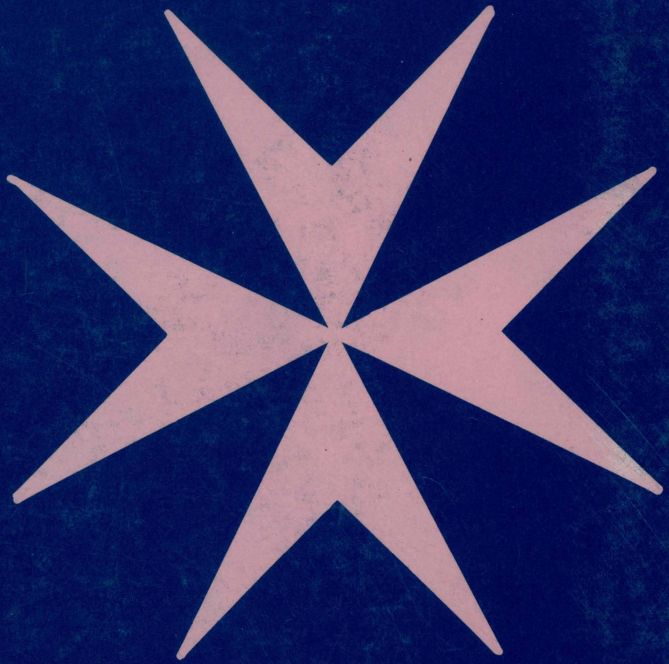
Films on Peace. The competition will be arranged in connection with the international festival The Meeting of the Worlds in June 19-23, 1990, in the city of Joensuu, Finland. The organizers of the festival are PAND International (Performers and Artists for Nuclear Disarmament) and the Joensuu Song Festival. The famous American singer Harry Belafonte is the sponsor of the festival.

The idea behind the festival is to convey the message of the importance of co-operation and friendship between the peoples in furthering peace and detente. In addition to the film competition the programme of the festival will include concerts of both classical and popular music, an international art exhibition, theatre and dance performances etc. Well-known artists from all over the world will gather together to give their contribution to the important issue of peace.

The jury members of the competition will be internationally recognized film personalities. Ingmar Bergman has accepted to be the patron of the film competition. Film directors Gleb Panfilov, Soviet Union; Ousmane Sembene, Senegal and Octavio Cortazar, Cuba have confirmed their participation in the jury. And film directors Oliver Stone, USA; Mira Nair, India; Miquel Littin, Chile; and Francesco Rosi, Italy have given their preliminary acceptance to participate.

The grand awards ceremony will be one of the highlights of the Meeting of the Worlds Festival. The main prize will be a statuette commissioned for the competition. Honorary mentions will be awarded to a maximum of five films. Those interested could contact: Tuula Linsio, General Secretary, PAND International, Joensuu Song Festival, Koskikatu 1SF-80100, Joensuu, Finland. Tel: 358 73 201200, Tlx: 46196 JOETO SF, Fax: 358 73 201295.





ISSN : 1015 - 5090