

THE NEW ATLAS OF ISRAEL

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The fourth edition of the National Atlas of Israel was published in June 1995. In its main scientific thrust, it is a direct continuation of the former editions but it differs very much in two aspects: its format was changed radically, from a huge hard-cover volume (the dimensions of the third edition were 35 x 49 cm), to a handy soft-cover booklet (23 x 33 cm) aimed at the widest readership possible. The second difference is the transformation of the atlas to a user-oriented publication. The application of this principle changed the text and the graphical expression of the atlas to a very large extent, justifying its title "The New Atlas of Israel".

The National Atlas of Israel has been published in the last generation in three successive editions (1956-64, 1970, 1985). The National Atlas of Israel is one among a large group of national atlases, all of them depicting graphically a most comprehensive list of the various aspects of the geography of their respective countries. It is quite obvious that there are different approaches to the substance and the form of national atlases, but all of them do have one feature in common: they are scholarly works, designed as academic publications, presenting the most up-to-date information, with scientific precision defined as their main objective. This common scholarly approach is achieved to varying degrees by different national atlases, but for all of them, it is the major objective shaping their editorial policy and cartographic presentation. A national atlas is, first and foremost, a research instrument, aiming at the highest precision and detailed comprehensiveness. The National Atlas of Israel, in each of its three editions, would fit very well into this description of a national atlas. It is most comprehensive in terms of the topics covered, it is most detailed in the complete

presentation of phenomena, it is up-to-date in regard to including the results of the most recent geographical studies, and it is very precise as to both locational and statistical precision. In the pursuit of being comprehensive, detailed and precise, the Israel national atlas has often operated very near the threshold of visual perception and the minimum levels of differentiation and separation of symbols and colors. In the well-known dilemma of the trade-off between precision and clarity, between the most detailed presentation and the ease of legibility, the national atlas has explicitly opted for precision and comprehensiveness, and in this respect has fulfilled the basic conditions of a scientific publication.

After completion of the third edition of the national atlas, it was decided to publish a new Atlas of Israel Which will cater not only to the academic community but to the public at large. This decision was prompted by both the awareness of the acute need for a school atlas as a basic tool for the study of Israel, and the availability of a body of knowledge and cartographic experience used in the production of the national atlas. In order to produce a useful publication of the broadest scope and the highest appeal, the editorial board of the national atlas embarked upon a major cartographic effort to transform the national atlas from a research-oriented publication into a public-oriented one (Sandford, 1984). This required the elaboration of a new editorial policy and applying a different set of cartographic principles, which will be detailed on in this paper.

The primary thrust of the editorial policy is to turn a scholar-oriented scientific document into a user-oriented educational tool (Spiess, 1988). The principles of editing are based primarily on the cognitive capacities of readers and students (Randhawa, 1987). Thus, clarity of cartographic expression is the main guideline of the editorial policy. The goal of making the maps as legible as possible is to be achieved through a variety of means. First, it entails a careful selection of the topics to be presented in maps and diagrams. Second, it requires the application of presentation methods, palette of colors and graphic symbols which are easily grasped and understood. Extensive labelling and clear typography are also important tools, in achieving

high levels of clarity and legibility of maps in the atlas. Special attention is given to consistency in the map formats and scales, in order to facilitate comparative work and integrative analysis in the atlas.

Each of these guidelines of the editorial policy deserves some elaboration, and they will be presented graphically by using several sets of maps, taken from the former edition of the national atlas and from the new atlas.

Selection of topics: Basically, the topics presented in the new atlas are quite similar to those in the national atlas, covering systematically the physical and man-made features of Israel. The main difference between the two atlases rests with the selection for the new atlas of a small number of maps to represent a topic depicted by a large number of maps in the national atlas.

As an example, consider the maps on the topics of industry. In the national atlas, these topics are represented by 15 maps for each of the economic branches. In the new atlas, only one economic branch is shown: only: The electronic industry, representing high-tech industry. Another example is rainfall. The national atlas includes 44 isohyte maps for each year from 1932 to 1975. The new atlas uses only two maps, showing the wettest and the driest years over this span of time. The selections for the new atlas may be considered a sort of "representative sample", using criteria of relevancy and meaningfulness to include the most important information on each topic by means of the smallest number of maps.

Another consideration in selecting a map to be included in the new atlas is how well it fits into the curriculum of studies in the Israeli educational system, especially the program of studies in Geography. With the stronger emphasis, in recent years, on urban and economic geography of Israel and in the high school geography curriculum, the new atlas devoted a significant number of sheets to these topics. In a semi-arid country like Israel, water resources and water utilization are studied extensively within the geography curriculum, and this lead to the inclusion of a whole sheet on the topic of "water" in the new atlas. Taking these various considerations into account, the new atlas comprises 44 sheets, with more

than 250 maps and diagrams (Appendix I: Table of contents of the new atlas).

The second guideline of the editorial policy is clarity of presentation and ease of interpretation (Petchnik, 1987). When elaborated into editing principles, this guideline takes several directions. First, it requires handling only one subject in each map. Despite the well-known temptation to incorporate several related subjects in one map in order to highlight spatial correlation, the new atlas put special efforts into devoting a separate map to each individual subject, thus allowing the integration of geographical components and the discovery of spatial relationships to be carried out in class or in the students' homework. The need for integrative and comparative work in school dictates another editing principle, the one of consistency in map projections, formats and scales when dealing with related subjects. This enables comparative analysis and spatial integration work in using the new atlas. A good example of the application of this principle is in the significant changes made in two maps from the national atlas, on Climatic Zones and on Rainfall in the Middle East. The changes gave these maps the same projection, format and scale in the new atlas, whereas in the national atlas all three of these cartographic features were different for the two maps. The new atlas contains many other examples of the application of this editing principle, which was seen as being of crucial importance in facilitating the process of geographical studies.

To enhance the legibility of maps, taking into account the cognitive capacity of students, the editing principle of generalization has been applied in some maps. This was necessary for those maps in the national atlas which were very detailed, including a great amount of information on a specific topic. These comprehensive and detailed maps were regarded as too difficult for study and interpretation by pupils. Thus, they were put through a generalization process which emphasized the most important features of each map, and omitted minor details of the particular phenomenon. This is a clear case of giving preference to clarity of presentation and ease of interpretation, over comprehensive and detailed information, a preference which seems essential in catering to educational needs and purposes. Good example

of the application of this editing principle are: (1) the geological map of Israel, which in the new atlas contains a very generalized fault system, and (2) the map of the national network of water pipelines, which is also quite generalized in comparison to the corresponding map in the former editions of the national atlas.

In cartographic terms, the guideline of clarity of presentation and ease of interpretation meant operating further from the threshold of visual perception, and further still from the minimum levels of differentiation and separation of colors and symbols. This meant using a palette of colors which are easily distinguishable and screens which can be differentiated without any difficulty, and also employing graphic symbols which are well understood, without relying too much on map legends. The legends themselves received special attention in the new atlas. An effort has been made to avoid legends containing long lists of items. Instead, legends are organized in groups which correspond to the internal structure and typology of a given phenomenon shown in the map. Good examples of structuring the legends are found in the geomorphological map no.24/25 and the map of Köppen classification of climatic types in the Middle East no. 27. To improve map legibility even more, names and labels are used extensively wherever possible.

There is no doubt that the application of these cartographic methods makes the new atlas look much less refined and articulated than the national atlas, but this seems a price well worth paying in order to achieve a higher-level of understanding and improved learning, which is the ultimate goal of the New Atlas of Israel.

To sum up, the New Atlas of Israel is an attempt at popularizing the instrument of a national atlas and making it a day-to-day source of information, highly relevant to societal issues, easily legible and amenable to clear interpretation. In its new edition, the national atlas has become an educational tool, easily available to the public at large. It is quite possible that the New Atlas of Israel is the last of its kind to be published on paper, as the fifth edition might well be our first electronic atlas (Klinghammer, Zentai, Ormeling, 1993). The transformation of the fourth edition into a user-oriented publication was a necessary step toward the electronic atlas.

Appendix I

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