A shallow well provides drinking water to Maasai pastoralists in Amboseli National Park, southern Kenya, where the grazing of wildlife and domesticated animals are taken into consideration.

The process of transition: Rahat, an urban Bedouin community in the northern Negev.

Passive climatimization of buildings: One innovative device that has been integrated into the design of the Ed Vickar Visitors Center, at the Sede-Boger campus, is this ventilated Trombe wall.

Integrated research investigates the influence of urban design on microclimate and evaluates the thermal behavior of open spaces, placement of courtyards, urban canyons and other factors. This model represents one approach to urban design in drylands.
The Department of Man in the Desert approaches the human dimension of desert life from two different aspects: Research in the Social Studies Unit focuses on the historical, anthropological, economic and social aspects of life in drylands, while members of the Desert Architecture and Urban Planning Unit focus on building design and construction technology, as well as on urban and regional planning suitable to the desert.

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*Social Studies
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Social Studies Unit

The Department’s Social Studies Unit investigates the anthropology, sociology, regional development, human geography and economic history of people in drylands. Interdisciplinary research includes resource and proactive contingency planning, as well as crisis management. Special attention is given to processes of urban and rural settlement of Bedouin.

Major research areas include:

- Studies of Bedouin culture and society: the process of modernization of this traditional society; the Beer-Sheva market.
- Regional language, culture and history.
- Proactive contingency planning and interactive crisis management in drylands, including drought and desertification; drought planning and rainwater harvesting for arid-zone pastoralists in Kenya, India and Israel.
- Cooperative agricultural settlements in Israel;
- Pastoralism in the Middle East, India and Africa: the development of villages for shepherds; interaction between nomads and agropastoralists;
- Postsocialist societies: Bulgaria, Romania, China and the former USSR;
- Jewish inhabitants of the Negev, with special emphasis on Mizrahi (Oriental) women;
- Gender and development: studies of development processes in non-Western settings, especially in desert regions, including the Israeli Negev, Western and Southern Africa (Burkina Faso and Botswana) and the Middle East (Jordan, Egypt, The Palestinian Authority and Israel);
- Small group dynamics;
- Sociopsychological testing of Palestinians and Jewish-Israelis regarding their views of each other and their views of individuals suitable as mediators of the regional conflict;
- The political economy of agriculture in Israel and in developing countries; the politics and economics of agricultural technology transfer; the impact of agricultural R&D on economic development; and the decollectivization of the Israeli moshav and kibbutz and its consequences.

Members of the Unit are part of the Multilateral Working Group on the Environment of the Middle East peace process: Initiative for Collaboration to Control Desertification of Arid Lands. The group works with local farmers and shepherds to develop sustainable agropastoral systems. Towards this end we collaborate with the International Center for Agricultural Research in Dry Areas (ICARDA), the World Bank, and delegations from Egypt, Jordan, the Palestinian Authority, Tunisia and Turkey.

The Unit organizes an annual seminar on Bedouin Society and Culture in cooperation with the Field Study Center at Midreshet Sede-Boqer. The lectures are published each year as Notes on the Bedouin. Thus far, 32 issues have been published.

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RESEARCH ACTIVITIES

Bedouin Culture and Society

Current anthropological literature dealing with the Bedouin concerns itself primarily with the transition of pastoralists who have relinquished their traditional way of life for more modern modes of existence. Modernization of pastoralism and of the pastoral way of life in arid zones is a direction, which, despite its merits, has been largely overlooked. In an ongoing project, our team has been working with the Bedouin to reinforce the alternative of rural development, alongside the urban, which would enable Bedouin to retain their herds in deep desert lands on in situ feed. To this end, the team has been working with Middle Eastern, Indian and African experts to engage the local population in enriching the forage for their flocks/herds. (Funding: Israeli Ministry of Science Culture and Sport)

With: W. Ruqian, L. Zhicheng, Chinese Academy of Agricultural Sciences, Beijing

While polygamy (polygyny) is illegal in Israel, it can still be practiced among the Negev Bedouin. We are studying the extent of this phenomenon and looking into the ways in which it has changed over time (some experts believing that it is on the increase), while looking into some of its economic and educational consequences. (Funding: Israeli Ministry of Science Culture and Sport)

With: R. Hermesh, H. Abu Rabyia, Ben-Gurion University; A. Hlihal, Central Bureau of Statistics

ISRAELIS AND PALESTINIANS

In collaboration with Palestinian colleagues, we are investigating the attitudes of Jewish Israelis and Palestinians towards each other as well as the characteristics that would be necessary for individuals who might serve as mediators between the two sides.

Pastoral Societies in the Middle East and Africa

Arid-zone pastoralists in many parts of Africa and Asia are faced with profound difficulties and changes, which effect the viability of nomadic pastoralism. Moreover, the impact of drought has increased, which may lead to desertification. Detailed data is being collected on rural knowledge systems and livelihood strategies of the Turkana, Maasai and the Bedouin in a bottom-up approach. We expect to develop socially acceptable drought-planning strategies and rainwater-harvesting systems for arid-zone pastoralists. While attempts have been made to direct them to agriculture, all three groups show a traditional reluctance to farming. But they express a readiness to cultivate land along with herding. We propose intensified resource management, including rainwater harvesting for increased cultivation and fodder production in drought years. The type of rainwater-harvesting systems must be optimal, not only in hydrologic terms, but also in relation to land-rights, boundaries and maintenance. Proactive planning for drought is required at three levels: the household, regional and national levels. (Funding: Netherlands-Israel Development Research Program)

With: J. Akonga, Moi University, Kenya; collaborators from Kenya Agricultural Research Institute, Nairobi; Ministry of Land Reclamation, Regional and Water Development, Arid and Semi-arid Lands Development Program (ASAL), Kajiado, Kenya; African Studies Center, University of Leiden, The Netherlands
Drought does not strike suddenly with violent force like an earthquake or hurricane. It is a “creeping phenomenon,” with drought conditions developing passively in a nondramatic way, due to lack of precipitation. The impact of drought can, nevertheless, be devastating. Drought affects more people, both in developed and developing countries, than any other natural hazard. However, meteorological drought is not the only cause of water scarcity in modern society; if the state and/or the private sector create a demand for more water than is replenished, conditions of water scarcity develop, classified as socioeconomic drought. Both types of drought currently affect Israel.

The lack of drought preparedness, along with the lack of proactive drought-mitigation planning in Israel, is a paradox in light of the highly sophisticated and efficient irrigation equipment the country has developed. Large-scale water desalination should have been developed in the wake of the water crisis of 1990/91. The relation between drought and wheat production in Israel is being investigated in relation to grain imports and the very low level of world food reserves, as well as in terms of contingency planning.

The International Convention to Combat Desertification distinguishes four arid zones: hyper-arid, arid, semi-arid, and dry sub-humid. These zones are defined on the basis of the so-called P/ETP index: P is the average annual precipitation and ETP is the average annual potential evapotranspiration. There are several approaches to calculate potential evapotranspiration. We are evaluating the numerical and spatial differences in the location of arid zones in Israel, based on three different approaches to calculate ETP: 1) the Thornthwaite approach, as used in the World Atlas of Desertification; 2) the Penman approach; and 3) Pan-A evaporation data as a proxy for ETP. The results are important for Israel as a basis for the study of desertification and drought, including their social aspects, drought compensation and land-use planning. The results are also significant internationally for evaluating the three approaches in defining the arid zones in relation to the International Convention to Combat Desertification.

Planning should consider the variability of environmental changes in deserts and drylands, as well as the risk of natural hazards, such as earthquakes, volcanic eruptions and severe drought. Time-series analysis with high-quality radiocarbon dating forms part of ongoing research cooperation with the Center for Isotope Research, University of Groningen, The Netherlands.

Past earthquakes in the Dead Sea area caused deformation of certain sedimentary structures into so-called load-structure seismites. We observed cyclic repetitions of deformed load structures over a rather wide lateral extent in most alluvial fan deltas in the Dead Sea area, including those of Nahal Kidron, Hazezon, Ze’elim and Mor on the Israeli western side, and in the fan delta of Wadi Mujib in Jordan on the eastern side. An outcrop in the alluvial fan system of Nahal Ze’elim exhibiting load-structure seismites was sampled for dating. The radiocarbon dates range from 860 ± 40 BP (GrA-14265) to 2120 ± 40 BP (GrA-14261). The 14C date of organic matter from one of the seismic layers is 1980 ± 40 BP (GrA-14264); the calibrated date is 40 cal BC - 70 cal AD. A time correlation was found with mixed-layer seismites from deeper lacustrine environments, which give a more comprehensive record of earthquakes in the area studied by Revital Ken-Tor et al. of the Hebrew University. The date of the above seismite may be correlated with the historic earthquake of September 2, 31 BCE, as reported by Josephus Flavius. It was a severe earthquake that caused much destruction and 30,000 casualties in Jerusalem, Qumran, Massada and Jericho.
Northern Nigeria is undergoing desertification involving both desert encroachment (from Sahara) and soil erosion. We have examined the feasibility of erecting a one-kilometer wide “Green Barrier” of forest along the country’s Northern Border to counteract desert encroachment and soil erosion, to reduce the amount of Saharan sand carried into Northern Nigeria, while slowing the silting of the rivers and the spoilage of arable and grazing soils. This will help alleviate such desertification-related problems such as overgrazing and farmer-herder conflict. The research identified three regions along the Northern Border, which are different from each other in respect to soil, climate and political economy. We decided to set up pilot projects to test some of the solutions. In each of the three regions, ways were suggested to improve the relations between herders and farmers by increasing long-term economic relationships that generate mutual profit and positive social interaction. 

With: K. Droppelmann, Y. Avni, BIDR

Cooperative Agricultural Settlement

We have engaged in a historical community study detailing the antecedents, implementation and consequences of the planned revamping (“de-collectivization”) of a prosperous Negev kibbutz. Israel’s kibbutzim initiated rapid changes following the crisis triggered by the harsh government policies of 1985-1986, implemented to stop three-digit inflation. However, the crisis’ roots lay in years of mismanagement by kibbutz federations and its local elites. The crisis raised doubts about kibbutz viability, causing some elite and younger members to leave, while others strove to narrow the gap between the socialist rules of the game and those of a capitalist economy. The kibbutzim reduced collective responsibility for its members’ welfare, while increasing their independence as breadwinners and consumers; decentralized the kibbutz economy, bolstering the authority of branch managers vis-à-vis the rank-and-file and their autonomy vis-à-vis central management; and established economic reward differentiation according to responsibility and professional status. The process involved severe confrontations, disaffecting weaker members of the community and damaging its social fabric. The specific kibbutz studied minimized this damage, thanks to its prosperity and the fact that its elites understood that near-unanimity (rather than majority decisions) was necessary to legitimize major alterations of the basic social contract in an “intentional” community. (Funding: The United Kibbutz Movement)

With: R. Naor, United Kibbutz Movement.

Kibbutz organizations and individual kibbutzim went through a protracted financial and social crisis beginning in the mid-1980s. We are studying the antecedents to this crisis in terms of the State’s unconditional economic support of individual kibbutzim and their organizations, and the ways in which economic behavior was affected. The waning of that support, as well as the adaptations of surviving organizations to the new environment, is also under investigation. Three levels of organization are considered: 1) national kibbutz organizations and their relationship with government and other national level organizations (banks, large commercial organizations); 2) regional economic kibbutz organizations and their environments; and 3) individual kibbutzim.

The kibbutzim and their organizations were affected by various events in Israel’s history (the Yom Kippur War, the Oil Crisis, three-digit inflation, mass migration, etc.), as well as events of their own making (e.g., the unification of two kibbutz federations in 1980). This project aims to unravel the ways in which kibbutzim and organizations were affected by the new situations and coped with them. An important purpose is explaining the variability, for example, in the strategies of kibbutzim and organizations, as well as their achievements in the different periods. (Funding: The United Kibbutz Movement)

With: O. Arian, Tel Aviv College
Re-examination of a kibbutz studied 30 years ago revealed a major transition: work in kibbutz enterprises is being replaced by employment outside the kibbutz, providing members with greater sense of personal fulfillment. (Funding: The United Kibbutz Movement)

Israel may be the only developed country where the declining number of farmers has caused almost no decline in the share of country dwellers. Israel's small size and high population densities make living in the countryside while working in the city an attractive, if expensive, opportunity for the middle class. Four hundred or so moshavim (pl. of moshav, a small-holder cooperative village) constitute Israel's most prevalent form of settlement. Almost all are officially committed to expansion, even to doubling the population, by allowing resident nonmembers (moshav offspring or outsiders) to build their homes in the moshav. However, the moshavim are built on state land hitherto reserved for agriculture, and expansion was only authorized in 1992, following the post-1986 crisis in agriculture. Thus, moshav expansion is new and experience dealing with problems likely to occur is lacking.

We are examining five moshavim that expanded more than five years ago, considering the relations between newcomers and veterans, as well as within each group. Special attention is paid to gentrification, i.e., the addition of higher status residents to the former population. While this raises property values, it can make life more expensive for the veteran population and reduce its autonomy. (Funding: Ministry of Agriculture and Rural Development)

We have reviewed ten years of published research on interpersonal relations and roles in small groups, as well as the relationship between small groups and organizations. This work will be published in the next edition of the Handbook of Small Group Research. Two co-authored books are in preparation: one, a biography of Professor Robert F. Bales, formerly of Harvard, who made major contributions to research on small groups; and the other, a book bringing together the most recent advances in "SYMLOG" theory, which Bales originated.

We are investigating the settlement experience of immigrants in the Negev town of Yeruham. The sociodemographic profile of the town has been documented, and ethnographic field research is being carried out. It includes the collection of oral histories, participation in public events and interviews with town officials. The research is conducted from a strong gendered perspective. (Funding: International Center for the Study of Jewish Women, Brandeis University, Waltham, MA)

Over the past decade or more, scholars and policy makers concerned with the impact of desertification and drought have called for a "people-centered" approach to development planning. Noting that at the production level, women are more involved in agriculture than men and thus play a crucial role in the utilization and management of land resources, particularly arid and semi-arid areas, the International Convention to Combat Desertification has underscored the need to facilitate the effective participation of women in developmental initiatives. This calls for research and policy planning that is carried out from a strong gender perspective. We are applying this perspective to both empirical and theoretical research. Our theoretical research aims at developing a conceptual framework often known as "postcolonial feminism." Here gender dimension in Third World societies are not examined using Western feminist theories, but by taking class, nationality and other lines of social division into consideration. Our research focuses on building a conceptual framework that will be best suited for empirical research on women's role in the development process.
The process of combating desertification and drought in arid and semi-arid regions in Burkina Faso is being studied from a participatory approach. Gender-centered development has been investigated as part of the overall "people-centered" perspective described above. The four-year research project is being carried out with Dutch and Burkinabe scholars. Three junior researchers earned their graduate degrees as part of the project. Motzafi-Haller is project director. (Funding: Netherlands-Israel Development Research Program)

With: C. Schweigman, University of Groningen; The Netherlands; N. M. Zagre, F. Sanou, University of Ouagadougou, Burkina Faso

Definitions of nomadic populations or of hunting-gathering modes of existence do not often consider the ongoing interactions these communities have with their agriculturalist neighbors, nor the fact that they are part of powerful state systems that limit their access to resources, such as land or water. Data gathered over almost two decades in the Central regions of Botswana examines the dynamic relations between Basarwa (Bushmen) and Tswapong (a subgroup of Tswana agriculturists). Factors examined include the struggle for land, labor and access to state economic and social resources. The data shows that, contrary to planners' intentions, economic and social disparities increased within the regional population. The impact on the lives of women, both Tswana and Basarwa, is examined from a strong postcolonial feminist perspective.

At the initiative of the Danish Government, a regional agricultural program involving four partners – Jordan, Egypt, the Palestinian Authority (PA), and Israel – was begun in 1997. The program integrates research with extension and training activities designed to promote sustainable development in the region. A group of four "gender specialists" was formed in order to design ways to ensure equal participation of women in all stages of the regional program. The gender-specialist group produced a comprehensive review that outlined the gaps in data regarding "women's participation in agriculture" in each of the region's national frameworks and proposed strategies that will support the active involvement of women in specific agricultural projects. (Funding: The Danish Government (DANIDA); governments of Egypt, Israel, Jordan, and the PA)

With: A.-H. Musa, independent scholar; Zeinab El-Toubshy, Egyptian Ministry of Agriculture; L. Rousan, Jordan University of Science and Technology, Irbid

Maasai pastoralists in Meto village, Kajiado District, Kenya. Changing land rights from communal to group ranches or to private land ownership is accompanied by sedentarization, architectural changes and agropastoral development.
The Desert Architecture and Urban Planning Unit (DAUP) addresses the issue of desert building, particularly in Israel's Negev. The Unit's activity is unique in that it combines scientific research and educational programs with practical work in the field of architectural design.

Researchers identify, study, and formulate solutions to specific problems of desert habitation. These problems stem from natural conditions, such as resource availability and climate, as well as human issues that include thermal comfort, energy consumption, construction technology, urban form, and regional development. The main areas of research are:

1) issues of energy and climate in desert architecture,
2) urban and regional planning in arid zones,
3) the development of alternative building materials.

In addition to research, members of the Unit engage in the design of selected architectural projects. Completed projects are used for monitoring and analysis, and for demonstrating the possibilities of bioclimatic architecture in the desert.

The publication of research findings and exhibition of architectural projects are part of the Unit's ongoing efforts at disseminating knowledge about desert architecture to both practitioners and the general public. Other activities include professional consultations, academic courses, international conferences, and professional seminars.

For a detailed description of the Unit's activities, visit its web site: http://www.bgu.ac.il/DAUP.

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CONTROLLING light TRANSMISSION THROUGH WINDOWS: REVERSIBLE VENTILATED GLAZING SYSTEM

Erell, Etzion

Testing a reversible glazing system: a novel method for improving comfort in both summer and winter.

ROOF-MOUNTED PASSIVE COOLING OF BUILDINGS

ETZION, ERELL

RESEARCH ACTIVITIES

Passive Heating and Cooling of Buildings

State-of-the-art glazing systems can provide very good solutions for cold climates and fairly effective ones for warm climates. However, there is still no window system on the market that can offer the flexibility required to provide a comfortable visual environment and an efficient energy response in climates where heating is required in the winter and cooling in the summer. We designed and developed a novel glazing system that overcomes glare and radiation damage to interior furnishings, yet causes no reduction in the energy efficiency of the glazed opening as compared with conventional windows used in direct gain systems. Tested experimentally under both winter and summer conditions, the new glazing system showed superior performance with respect to conventional windows; it now requires only engineering of the frame prior to commercial application.

The glazing system (patent pending) incorporates a rotate-able frame holding two glazing components: transparent glazing providing a weatherproof seal, and absorptive glazing with a low shading coefficient. The absorptive glazing is fixed at a small distance from the clear glazing, forming an interstitial air space, which is sealed at the sides but open at top and bottom so that air flows freely through it. In summer, the absorptive glass faces the exterior of the building, absorbing excessive solar radiation and dissipating the heat into the ambient air. In winter, the glazing assembly is rotated so that the absorbing glass faces the interior, reducing glare but allowing effective convective and radiative heating of the adjacent space.

The DAUP heads a consortium of six European partners in an EU-funded project designed to complete the development of the glazing system and the necessary hardware needed for its utilization. The glazing system will be modeled and evaluated experimentally. A suitable frame will be developed for it, and a design tool required for its application will be developed. With completion of the project, we expect to have a tested product, ready for demonstration and commercial exploitation.

Roofs are a primary source of undesirable energy absorption, leading in hot climates to overheating of buildings. Current techniques try to minimize the problem by insulation. However, the roof is also the best place for installing various cooling systems. We have been carrying out experiments for nearly ten years in a project aimed at applying nocturnal long-wave radiation to cooling buildings. A system was developed, which consists of a shallow roof pond that is insulated from the environment and flat plate radiators exposed to the sky. Water circulating through the radiators at night is cooled by long-wave radiation and convection. Since the temperature of the radiator is close to that of the water in the roof pond and warmer than that of the ambient dry bulb temperature for at least part of the time, fairly high cooling rates could be maintained throughout the night. The system was installed and monitored in a building of approximately 75 m². It provided a mean nightly cooling rate of 80-100 watts per square meter of radiator.

Preliminary investigations indicate that the radiative cooling system using roof ponds, with no physical modifications, could supply a significant portion of winter heating requirements in areas where summers are hot, yet winters cold enough to require heating systems. The system's heat output averaged 370 watts per m² of collector under cool, sunny conditions, though on windy, overcast days the system was inoperative. Heat output is determined primarily by the intensity of solar radiation on the collectors, wind speed and the temperature difference between the water in the roof pond and the ambient air. We tested further modifications to the radiative cooling system, as well as an innovative evaporative cooling system, within the framework of the ROOF S0L (Roof Solutions for Natural Cooling) project, funded by the European Union and carried out in collaboration with researchers from six research institutions in Europe. This project was aimed at developing and testing roof systems suitable for use in Mediterranean or desert climates, which use natural cooling techniques to extract unwanted heat from buildings.
URBAN CLIMATOLOGY

This project is part of a broader program to extend and validate a computer model that may be used to predict air temperature in a specific urban location on the basis of meteorological data from a reference site for which data is available. This segment of the project will focus on the effect of vegetation on microclimatic conditions in an urban canyon. It involves field measurement of meteorological conditions in an urban site with extensive vegetation, the maintenance of the monitoring system for several months and the evaluation and analysis of data from this and three other urban sites.

This computer model is expected to have three main applications:

a. the evaluation of microclimatic effects of proposed planning regulations concerning land use and building density in new or existing urban developments;

b. the evaluation of changes in the microclimatic conditions at specific urban locations as a result of proposed changes, such as new construction; and

c. as a research tool for examining various urban configurations in terms of their effect on pedestrians and on energy consumption in buildings.

With: T. Williamson, University of Adelaide, Australia

The modifying effects of a city on local climate have a profound influence on energy consumption, air pollution and human comfort - issues that are especially pronounced in a climatically harsh desert region like the Negev. Climatic comfort may be enhanced through appropriate urban design practices, but this requires an understanding of the complex interactions between climate and the man-made environment.

A novel approach to investigating these interactions has been developed using a physical scale-modeled city - allowing the simultaneous observation of parameters such as temperature, humidity, solar and terrestrial radiation, and wind, all under actual climatic conditions. Since the model is easily adaptable, researchers are able to analyze the thermal impact of specific urban design features, such as building and street geometry, as well as materials.

The first stage of such a modeled urban surface has been constructed and tested at the Sede-Boqer Campus. Measurements have shown the model is capable of paralleling full-scale conditions, and microclimatic monitoring has been conducted for a range of local variations in street geometry.

With: P. Berliner, BIDR

BUILDING MATERIALS

We continued to carry out corrosion tests under the project: "Corrosion-resistant materials based on natural SiO₂-containing materials." Results suggested that a material prepared on the basis of Porcellanite is stable in sulfate solution and in Dead Sea water and should also retain its stability in the presence of other salt solutions.

Interesting results were obtained when natural tuff, common both in Israel and Jordan, was used as the source of SiO₂. Specimens exhibited a compressive strength of up to 80 - 100 MPa and successfully withstood the corrosion tests in various salt and acid solutions. We concluded that the tested, burnless, cementless, corrosion-resistant materials could be used for manufacturing prefabricated building elements and for the linings of industrial equipment.

Other studies focused on developing a sand substitute for the production of autoclaved silicate units with a cellular structure. In experiments at the Ytong Industries plant in Ashqelon, loess taken from deposits near Kibbutz Gevulot was used instead of sand. Positive results were obtained. Test specimens based on the loess had a dry volume weight of 520 kg/m³ and a compressive strength of 22 kg/cm².
BUILDING TECHNOLOGY
EVOLUTION AND
ADAPTATION TO DESERT
CONSTRAINTS
MEIR

APPROPRIATE METHODS
FOR TEACHING
BUILDING PHYSICS
MEIR

INFORMATION AND KNOWLEDGE DISSEMINATION
We are investigating alternative - somewhat unorthodox - ways of teaching the
fundamentals of building physics by combining computer simulation tools with archaeological
and vernacular prototypes. Results show the advantages of this combination, including a
higher flexibility demonstrated by the students in investigating possible passive strategies. It
also raises awareness of the building and energy problems of Less Developed Countries
(LDCs), where building prototypes and construction technologies have not changed
drastically in the recent past. Preliminary results are summed up in the first of a series of

URBAN AND REGIONAL PLANNING
An explanatory model of regional inequality is proposed which attempts to explain a spatial
distribution of different income groups in a given population. The applicability of this model
to spatial inequalities in Israel is investigated, using data from five subsequent censuses of
population and housing taken in Israel since 1948. The analysis indicates that there is no
universal trend in the development of inequalities, examined from either a temporal or a
spatial point of view. Instead, the extent of interregional disparities appears to differ when
various indicators of inequality are considered. Measures of population distribution and
wealth indicate the highest extent of interregional disparities, while the country's regional
development appears to be the least uneven when indicators of education and participation
in the labor force are considered. The change in inequality appears to differ across various
geographic areas. Whereas development in the central part of Israel has tended to become
more uniform over time, the country's peripheral regions have developed towards further
polarization of their socioeconomic development. As a result of the analysis, several
strategies are proposed aimed at reducing the extent of interregional disparities. (Funding:
The Israel Foundation Trustees; Israel's Central Bureau of Statistics)

According to a general migration theory, the predominant motive of interregional migration
is job-related: long-distance migrants move to areas where more jobs are available and wages
are higher. This explanation, however, oversimplifies the process, since labor is neither
perfectly mobile nor responds readily to regional differences in either wages or
unemployment, which are only two of the many factors determining the geographic
movements of workers. The project tests an alternative paradigm according to which
interurban migration reflects not only employment-related changes, but also housing
availability at both source and destination. This specific paradigm can be formulated as
follows: when employment and housing availability in an area evolve in tandem, there is little
change in net migration. When these factors are not in sync due to land scarcity, a large influx
of immigrants or government policy, migration occurs. (Funding: The Israeli Ministry of
Science Culture and Sport; Japanese Society for the Promotion of Science)
Research Interests

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Topics related to appropriate design for desert regions, including sustainable, environment-conscious architecture in arid zones; Evolution and adaptation of building technology and types, with special focus on the Byzantine period and concurrent climatic changes; Urbanization among the Bedouin of Israel; Alternative information dissemination and education frameworks; Proactive contingency planning.
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Publications


Kressel, G.M. Problems of small-stock breeding in Jewish enterprises as compared to Bedouin ones. Notes on the Bedouin 32:84-106 (Hebrew) (2000)


Market day in Beer-Sheva is an important aspect of the economy and social structure for Negev Bedouin.