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TECHNICAL REPORT
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ARID-LANDS RESEARCH INSTITUTIONS: A WORLD DIRECTORY
FIRST SUPPLEMENT, 1968

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FOREWORD

One of the end-products of an earlier contract between the Army and the University of Arizona, which was funded by the Office, Chief of Research and Development, US Army, was a world Directory of arid-lands research institutions, published by the University of Arizona Press in 1967. Such a directory can be of maximum use only if it is up-to-date and accurate. The Office of Arid Lands Studies has updated the information in the Directory under contract DAAG17-67-C-0199 sponsored by the Office, Chief of Research and Development and the US Army Natick Laboratories. The University of Arizona also contributed funds toward accomplishing this work.

All users of this Directory are invited to correspond with the Office of Arid Lands Studies, University of Arizona, concerning additional changes not noted herein, as well as to bring attention to other institutions engaged in arid-lands research which have not been listed.

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ABSTRACT

This Supplement contains information on institutions not included in the 1967 publication Arid-Lands Research Institutions: A World Directory, and furnishes up-to-date information covering changes in data on various institutions represented in the 1967 Directory. Arid-lands research in new institutions in Australia, Chile, Israel, Jordan, Lebanon, Peru, U.S.S.R., U.S., and West Pakistan is described. Pertinent documentation information is included under FAO (Italy). Changes cover agencies in Argentina, Australia, Chile, Egypt, England, India, Israel, Jordan, Netherlands, South West Africa, Sudan, U.S., and West Pakistan. A brief list of errata to the 1967 Directory is appended.

INTRODUCTION

Arid-Lands Research Institutions: A World Directory* was published in 1967 as part of an inventory of geographical research on desert environments. This supplement accounts for changes in the various categories of information for the institutions represented and presents information on organizations that did not appear in the original Directory.

For the most part, the organizations listed provided the data in this supplement directly to the Office of Arid Lands Studies (known as the Institute of Arid Lands Research before becoming part of the University of Arizona's newly-created School of Earth Sciences in 1967). The information is divided into two parts: (1) institutions in Australia, Chile, Israel, Jordan, Lebanon, Peru, U.S.S.R., U.S., and West Pakistan not represented in the 1967 Directory; and (2) changes in information as published in that work for institutions in Argentina, Australia, Chile, Egypt, England, India, Israel, Jordan, Netherlands, South West Africa, Sudan, U.S., and West Pakistan. In all cases the format follows that established for the published information, based on a questionnaire (Fig. 1). Many of the changes noted in Part 2 derive from the passage of time: personnel, growth of laboratory/library facilities, a shift in program emphasis, etc. A few changes represent corrections to information published originally, and for these we express our appreciation for the opportunity to set the record straight. A brief list of errata is also appended.

Because of the fewer number of entries, we have used a straight alphabetical arrangement by countries as being more convenient for use than the original arrangement by continent-country.

* Paylore, Patricia. Arid-Lands Research Institutions: A World Directory. University of Arizona Press, Tucson, 1967, 8 p.

KEY TO ENTRIES

Name of institution (and date of information)

- a) kind of institution (international, governmental, private, etc.)
- b) governing body (composition, affiliations)

2. Full postal address of headquarters and important subcenters, branch offices, field sites, experimental stations, etc.

- a) geographical location (latitude and longitude, accessibility)
- b) description of locations where field studies are conducted (climatic types, vegetation types, elevation, and exposure)

3. Scope of interest, aims and major areas of specialization

4. Research program

- a) major projects completed
- b) current projects
- c) planned projects

5. Finances (optional)

- a) income and expenditures
- b) research fellowships and other forms of assistance

6. Staff and organization

- a) organization chart
- b) name of director
- c) names of chiefs of departments
- d) names of chief scientists and their areas of specialization
- e) number of scientists
- f) other employees

7. Facilities

- a) laboratory space and equipment
- b) nature and size of library holdings
- c) experimental areas
- d) accommodations for visiting scientists (including hotels, use of laboratory space and equipment)

8. Publications in series of the organization

9. History (date of establishment, major accomplishments)

Figure 1. Key to entries

PART ONE
ADDITIONAL ARID-LANDS RESEARCH INSTITUTIONS

University of Adelaide. Department of Botany. Ecology Group 1967

2. Adelaide, South Australia
 - a) temporary stations: Musgrave Park (131°50'E, 26°20'S); Yudnapinna (137°01'E, 32°S); Qucondong (140°4'E, 33°S)
3. Scope of interest: research and post-graduate training in theoretical and applied ecology of arid pastoral country. Emphasis on issues relevant to management and conservation
4. Research program: productivity, population structure, soil lichen crusts, animal interactions, data appraisal techniques
5. b) supported by grants from the University, and from the Australian Rural Credits Development Fund
6. Staff: R. N. Robertson, Professor of Botany, and Head, Department of Botany; R. T. Lange
7. Full departmental facilities at Adelaide, and the use of facilities on sheep and cattle stations by cooperative arrangements with owners

Asociación Chilena de Energía Solar Aplicada

1968

- b) Universidad de Chile, Universidad de Concepción, Universidad Federico Santa María, Universidad Técnica del Estado, Universidad del Norte, Empresa Nacional de Electricidad, Oficina Meteorológica de la FACH, and SOMELA and IMPLATEX. Affiliated with the Solar Energy Society, Tempe, Arizona, U.S.A.
2. Secretariat alternates among the affiliated institutions and organizations. Currently (1968) at the Universidad Federico Santa María, Valparaíso
 3. Scope of interest: to coordinate Chilean research in the field of solar energy and to provide a framework for collaboration and the exchange of ideas
 6. Presidente (1968): J. Hirschmann, c/o Universidad Federico Santa María, Casilla 110-V, Valparaíso, Chile
 9. Founded 1963. Recognizing this important new source of energy, the Asociación has stimulated a number of new research projects and encouraged new dimensions in existing investigations.

Centro de Investigaciones de Zonas Aridas (CIZAUN)

1968

- a) private
 - b) Universidad del Norte
2. Casilla 1280, Antofagasta, Chile
 - b) climate: desertic; vegetation: extremely scanty; elevations vary from sea level to 1500 meters
 3. Scope of interest: dynamics and thermodynamics of the troposphere in the Atacama Desert; applied solar energy; development of water resources; investigations into the meteorology and climatology of the Atacama
 4. Research program:
 - b) current: utilization of atmospheric water over the littoral of northern Chile
 - c) planned: evaporation and evapotranspiration, irrigation with salt water, domestic use of solar energy, all with specific reference to northern Chile
 6. Staff: H. R. Muñoz Espinosa, Director
 - d) specialists: Muñoz Espinosa (meteorology and hydrology), C. Espinosa A. (applied solar energy)
 - e) 4
 - f) 7
 7.
 - b) small specialized working collection on atmospheric physics, solar energy, meteorology, etc.
 - c) northern Chile littoral
 - d) accommodations limited
 8. Publications: Ser. A, Estadísticas; B, Divulgación; C, Investigaciones
 9. Established 1967 to centralize all research in arid lands with the purpose of conducting studies into the natural characteristics of arid lands and community problems in such an environment.

Compañía Salitrera Anglo-Lautaro

1967

- a) private
 - b) Departamento de Investigaciones Científicas
2. Salinas, Chile
 - a) $23^{\circ}06'S$, $69^{\circ}35'W$; approx. 65 mi. northeast of Antofagasta, accessible by arterial highway and by rail
 - b) Atacama Desert, northern Chile
 3. Scope of interest: industrial use of solar energy
 4. Research program:
 - a) completed: 10 solar ponds of evaporation, evaporating approx. 2000 cubic m. of water daily to concentrate solutions of sodium sulfate, at a saving of more than 50,000 tons of petroleum per year. Fifty percent of the incident solar radiation is utilized in the evaporation process
 - b) current: measurement of solar radiation balance as it affects the efficiency of solar ponds of evaporation
 6. Staff:
 - c) specialist: Dr. H. Suhr
 7. a) each of the ponds noted in 4. a), above, has an area of 44,000 sq. m.
 9. Ponds established 1951

2. Jerusalem, Israel
 - b) field studies conducted in semiarid and arid locations; vegetation types: degraded Mediterranean forest, steppe, desertic; elevation and exposure: from 400 m. below sea level to plus 1200 m. above
3. Scope of interest: geomorphology with special emphasis on weathering, erosion and wadi transport, hydrography; climatology with special emphasis on topoclimatology; planning for rural and urban settlement in arid areas; settlement of nomadic and semi-nomadic populations
4. Research programs:
 - a) completed: fluviomorphology of the Jordan River; the Jordan Delta; morphology of the Negev and the coast of Israel; geomorphology of the southeastern Lower Galilee region; geomorphological map of the Judean Desert; observations on the erosional processes in the bed of Nahal (Wadi) Zin, central Negev; floods of Nahal Besor, 1963/64; topoclimatology of Besor region, western Negev; microclimatological study in a valley near Jerusalem; regional geography of the central Jordan Valley in Israel
 - b) current: erosion, sediment transport, and sediment deposition in a small arid watershed; fluvial geomorphology and sediment transport in the Soreq watershed; investigation of Karstic, particularly speleological, phenomena in Israel; rates of regional denudation in Israel; precipitation, streamflow and sediment conveyance near the western shore of Lake Tiberias; topoclimatology of Arava Rift Valley; research on windbreaks and shelterbelts in the Arava Rift Valley; history of modern Jewish settlement in the Negev; urban zones of influence in the southern coastal plain of Israel; geography of "development towns" in Israel
5. b) general University fellowships
6. Staff: Professor D. H. K. Amiran, Director
 - d) specialists: Y. Karmon, S. Reichman (economic geography); I. Schattner, D. Nir, A. P. Schick, D. Baumann, R. Gerson

(physical geography), Y. Ben-Arieh (settlement and historical geography); D. Sharon, A. Bitan-Buttenwieser (climatology); A. Shachar, A. Gonen (urban geography); A. Brosh (biogeography); Y. Cohen (settlement and quantitative geography); A. Paran (settlement geography)

e) 16

f) 12

7. a) geomorphology and photogrammetry laboratories
b) 15,000 books and periodicals; maps (wall and flat); slides
9. Established 1949

Food and Agriculture Organization (FAO). Documentation Center 1968

- a) international
- b) United Nations

2. Viale delle Terme di Caracalla, Rome, Italy

3. Scope of activity: The growing interest in the problems of emerging countries, including many in the arid zone, and their economic development through technical assistance, has stimulated the demand for prompt information. The FAODC was created for the purpose of supplying such information readily through the use of modern methods of information storage, retrieval, and dissemination

4. Program: FAODC selects, analyzes, and indexes FAO publications, and documents formerly distributed only to specialists directly connected with FAO's work. Its services include:

- i) current awareness service: a monthly bulletin, FAO Documentation - Current Index, with 6-months cumulations, lists, abstracts and indexes the publications and documents just issued. It is sent free on request
- ii) retrieval services: special indexes covering all FAO subject matter fields for 1945-1966. Each contains several thousand bibliographical entries, with cross references by subjects and authors. They are announced as issued in the Current Index. See #8, below, for already-published indexes
- iii) question-and-answer service: replies to questions on specific topics, by providing ad hoc bibliographies and, if requested, the related publications and documents at sales price or reproduction cost. Publications and documents no longer in stock are supplied in the form of photoprints or microfiches

8. Priced indexes already published:

- Technical Assistance Reports, 1951-1965. 244 p. (\$3.00)
- Fisheries, 1945-1966. 432 p. (\$5.00)
- UN Special Fund Project Reports, 1963-1966. 82 p. (\$1.00)
- Forestry, 1945-1966. 656 p. (\$7.00)
- Plants, 1945-1966. 606 p. (\$6.00)
- Animals, 1945-1966. 408 p. (\$4.00)

9. FAODC created in 1967

Natural Resources Authority. Department of Research and Investigations. Hydrology Division 1967

b) cooperates with Jordan Meteorological Department; Ministry of Agriculture; Sand Stone Project (FAO)

2. Headquarters: P. C. Box 7, Amman, Jordan
3. Scope of interest: to collect data on rainfall, floods, surface discharge of groundwater, sea and lake levels, evaporation losses, sediment transport by streams, and salinity of surface waters; to carry out special hydrological studies relating to water resources, floods, soil erosion, salinization, etc.
4. Research program:
 - a) completed: flood probabilities of the Yarmouk and Zerqa Rivers; rainfall intensity-duration study, declination of groundwater areas; water balance; chemical gauging; Yarmouk River simulation study
6. Staff: Kamel Amin Kwar, Director, Department of Research and Investigation
 - b) Ali M. Labadi, Chief, Hydrology Division
7. c) 16 evaporation, 170 daily rainfall, 35 autographic, 65 summary rainfall, 40 streamflow gauging, and 400 springflow gauging stations
8. Publications: Technical Papers (no. 42, 1966/67); Professional Papers
9. Hydrology Division formed as a part of the former Central Water Authority, October 1961

American University of Beirut. Faculty of Agricultural Sciences 1968

- a) private corporation
 - b) Board of Trustees (New York)
2. Beirut, Lebanon (cables: AMUNOB Beirut)
- b) Agricultural Research and Education Center, located in the Beqa'a Plain; climate: Mediterranean, with annual rainfall averaging 200-400 mm; vegetation: sub-tropical in coastal areas, ranging to forests in the mountains, with desert shrubs in the interior. The Center is at an elevation of 1000 m., between the Lebanon and Antilebanon mountain ranges
3. Scope of interest: to promote and improve agricultural development of the Middle East through studies of soil fertility and conservation, irrigation and hydrology, food technology and nutrition, crop and animal production and protection, and agricultural economics and sociology
4. Research program:
- b) occurrence of plant diseases in the Middle East; biological studies of pests; chemical properties of soils; determination of water use by crops; wind and the economics of sprinkler irrigation; pilot projects in agricultural extension
5. a) research budget, 1965/66, \$265,000
- b) 125 AID full-cost scholarships in agriculture (53 at the master's level); 35 half-time graduate assistantships
6. Staff: S. P. Swenson, Dean of Agriculture
- c) H. D. Fuehring (soils and irrigation); W. W. Worzella (crop production and protection); K. V. Rottensten (animal production and protection); P. L. Pellett (food technology and nutrition); G. H. Ward (agricultural economics and sociology)
 - e) 30
 - f) 85
7. a) well-equipped laboratory in Beirut, approx. 2000 sq. m.; 250-acre research farm
- b) library includes current periodicals in agriculture and related fields
 - d) arrangements can be made to use the facilities through the regular University program, or otherwise, according to individual need

American University of Beirut. Faculty of Agricultural Sciences
(con't.)

8. Publications, 1, 1955- (no. 29, 1967); Scientific Papers, 1, 1955- (no. 99, 1968); Mimeographed Pamphlets: ser. C.P., 1, 1955- (no. 33, 1968); ser. R.I., 1, 1957; ser. A.E., 1-3, 1957-1959; ser. A.E.S., 1, 1966- ; P.S., 1-6, 1957-1961; ser. A.S., 1-17, 1958-1962, continued by: ser. A.P., 18, 1962- (no. 23, 1966); Miscellaneous Publications, 1-25, 1957-1966, continued by: Miscellaneous Series, 26, 1966-
9. Established 1952. Current enrollment in Agricultural Sciences 190, with 86 at the graduate level. To date, 250 degrees have been awarded, and 160 M.S. degrees. The faculty and its graduates have contributed much to the rapidly modernizing agriculture of Lebanon and more recently to other countries of the area, through the graduate study program

- a) governmental
- b) Irrigation and Power Department

2. Headquarters: Canal Bank, Moghalpura, Lahore, West Pakistan

a) Field Offices:

- i) Upper Chenab Canal, Lahore
- ii) Lower Chenab Canal (East Circle, West Circle), Lyallpur
- iii) Haveli Canal Circle, Multan
- iv) Lower Bari Doab Canal Circle, Montgomery
- v) Thur and Sem Statistics Divisions, Bahawalpur and Sukkur

Experimental Research Stations:

- i) Chakanwali Reclamation Farm, P. O. Kot Jan Bux, Gujranwala
 - ii) Dullewala and Mohraanwala Reclamation Farms, Montgomery
 - iii) Jagattan Reclamation Farm, Jaranwala District, Lyallpur
 - iv) Haveli and 7/3-L Reclamation Farms, Shorkot, Jhang.
 - v) M. L. L. Farm, Bhakkar, Mianwali
 - vi) Kundian Reclamation Farm, Kundian, Mianwali
 - vii) Lieah (Leiah) Reclamation Farm, Lieah, Muzaffargarh
- b) experimental areas lie largely within the Thar Desert, including the interfluves of Bari, Rechna, and Sind Sagar Doabs, between the upper Indus, Chenab, and Sutlej Rivers north of their confluence. The stations noted above are situated in the Multan, Bahawalpur, Dera Ismail Khan, and Khaipur Districts. Agricultural use is characterized by saline soils, water-logging, and associated irrigation problems. The regions under study are frequently bordered by extensive sandy areas.

3. Scope of interest: maintenance of salt balance in the use of irrigation water of different qualities on soil having varying physico-chemical characteristics, with special reference to depth of water-table and soil drainability

4. Research program:

- a) previous: principles underlying irrigation and soil-plant relationships; water and salts under saturated and unsaturated conditions; quality and improvement of quality of water; different constituents in water and their effect on physico-chemical properties of soils; groundwater testing for reclamation surveys and projects; soil surveys; water use by crops; scheduling irri-

Directorate of Land Reclamation
(con't)

- gation for maximum efficiency
4. b) current/planned: design of drainage systems to insure that sub-soil water is maintained below root-zone depth of crops; increase in available irrigation water

 6. Staff: Ch. Muhammad Hussain, Director
 - c) Ch. Nur-ud-Din Ahmad, Research Officer (soils), Lahore;
Ch. Muhammad Altaf Hussain, Physical Chemist, Lahore
 - e) 126
 - f) 192

 7. a) laboratories at headquarters equipped to carry out analytical work on soil and water problems
 - b) working collection of reference materials maintained at headquarters
 - c) experimental research stations vary in size from 25 to 3600 acres
 - d) laboratory and hotel accommodations at headquarters for visiting scientists

 8. Publications: over 100 scientific papers issued (1934-1967) in various journals. List available upon request

- b) affiliations: Instituto de Investigaciones Forestales;
Servicio Forestal y de Caza
- 2 Apartado 456, La Molina, Lima, Peru
- b) Huaura Valley, 125 mi. north of Lima; Lachay "loma", 60 mi. north of Lima; other "loma" areas, all lying between 300 and 800 m. above sea level along the coastal desert, where vegetation can develop without irrigation because of high air-moisture content
3. Scope of interest: silviculture, management, timber production, and utilization of natural resources in the arid coastal and mountain areas; afforestation and pasture-production programs
4. Research program:
- b) current: eucalypt afforestation; survey of Huaura Valley, covering sierra and coastal areas, in cooperation with FAO Project 218; experimental tree plantation in the Lachay "loma" (Eucalyptus sp., Casuarina sp., Grevillea robusta, Acacia vicia (Acacia vilca), Pinus sp. (Pinos), Prosopis sp. (Algarrobo), Acacia tortuosa (Huarango), Tara espinosa (Tara)
- c) planned: critical experiments throughout the "lomas" along the coastal desert
5. b) Proyecto FAO (UNDP)
6. Staff: A. Salazar Cavero (dendrología), Dean, Facultad de Ciencias Forestales; Director, Instituto de Investigaciones Forestales; Jefe, Departamento de Manejo Forestal
- c) Ing. A. Aróstegui Vargas, Departamento de Productos Forestales; Ing. M. J. Dcurojeanni (entomología forestal), Departamento de Protección y Conservación; Ing. E. David Barrios, Departamento de Política y Economía Forestal
- d) specialists: C. Bazán de Segura (fitopatólogo), V. González F. (protección forestal), P. V. Pierret, FAO expert (vida silvestre), L. Takhashi (usos de la madera), J. Bueno (productos forestales), W. Guerra S. (fotointerpretación forestal)
8. Publications: Revista Forestal del Peru, v. 1, 1967- (issued jointly by the Facultad de Ciencias Forestales and its affiliated organizations)

Kazakh Plant Protection Institute

1967
Source:
Zashchita
Rasteniy
3:60

2. Alma-Ata (?), Kazakhstan SSSR
b) Branch: Kokchetav (53°18'N, 69°25'E)
3. Scope of interest: entomology, phytopathology, prognosis,
herbicides, toxicology, biological methods, immunity,
agricultural zoology
4. Research program:
b) current: suslik control measures
7. a) isotope laboratory

International Center for Arid and Semi-Arid Land Studies 1967
(ICASALS)

- a) private corporation
 - b) Texas Technological College
2. Box 4620, Texas Technological College, Lubbock, Texas 79409
 3. Scope of interest: development of regional, national, and international competence in the documentation and dissemination of knowledge about arid and semiarid lands, their peoples and problems; pure and applied research on all problems associated with arid or semi-arid environments
 4. Research program:
 - b) current: cooperative projects with the College's Water Resources Center, Textile Research Center, Program on African and Asian Studies, and all its academic departments
 5. b) Ford Foundation sponsors foreign graduate students (four in 1967)
 6. Staff: Dr. T. W. Box, Director, Dr. I. R. Traylor, Deputy Director
 7. b) the College Library will create a "world bank of information" — books, manuscripts, still and motion pictures, audio and visual tapes and other media — relating to arid and semi-arid lands of the world. Computerized systems and other advanced methods of storage and retrieval will be utilized
 - c) College farm of 13,821 acres near Amarillo
 8. Publications: ICASALS Newsletter (v. 1, Oct. 1967-),
Special Reports, Publications (no. 1, 1967-)
 9. Established 1966

PART TWO
CHANGES IN INFORMATION ON INSTITUTIONS APPEARING
IN THE 1967 DIRECTORY

ARGENTINA

Comité Argentino para el Estudio de las Regiones Áridas y Semiáridas (CAPERAS) (p. 219) 1967

2. Presidente: ~~delete~~ (1965-1966): Néstor R. Ledesma, Facultad de Ingeniería Forestal, Independencia 341, Santiago del Estero; substitute Ing. Agr. Guillermo Covas, Director, Estación Experimental Agropecuaria de Anguilá, INTA, Casilla Correo 11, Anguilá, La Pampa

Estación Experimental Agropecuaria La Banda, INTA (p. 226) 1967

4. Research program: add experiments with cultivation of unrr gated land

Instituto Miguel Lillo (p. 221)

4. Research program:
 - c) projected: add comparative studies of the vegetation and insect fauna of North American deserts, with those of Argentina: a study of the adaptive characteristics of Argentine insect fauna to arid habitats use of such data to establish the limits of desert areas
6. Staff: ~~delete~~ Abraham Willink, Director; substitute Dr. José Antonio Haedo Rossi, Director
 - d) specialists: for "Willink (zoology)", substitute A. Willink (biosystematic and ecological studies)

AUSTRALIA

C. S. I. R. O. :

Division of Chemical Engineering (p. 112) 1967
Work on solar ponds has been terminated

Division of Land Research (p. 113) 1967

3. Scope of interest: add growth and development studies on selected plant species. Under "hydrological research . . .," add the word "type" before "catchments," to read: hydrological research with selected type catchments
4. Research program:
 - b) current: add persistence and productivity of exotic plants; growth and development of Astrebla pectinata; evaluation of water spreading in central Australia; frequency of bank full flow in streams; spatial and temporal characteristics of arid zone rainfall
6. Staff:
 - d) specialists: add K. D. Woodyer, M. J. Goodspeed, P. M. Fleming (hydrology)

Division of Mechanical Engineering (p. 114) 1967

3. Scope of interest: add human thermal comfort; thermal stress in various climates
7. c) add large (38,000 sq. ft.) solar still at Coober Pedy (600 mi. northwest of Adelaide), producing 3500 gallons per day at a cost of 75¢ per 100 gallons; others at Caiguna, and at Hamelin Pool (26°25'S, 114°13'E), approx. 125 mi. south of Carnarvon at the lower end of Shark Bay

Division of Plant Industry (p. 117) 1967

6. Staff:
 - d) specialists: delete R. M. Moore; substitute A. B. Costin
9. In the reference to The Division of Land Research, delete "and Regional Survey"

AUSTRALIA
(con't.)

Division of Soils (p.119) 1968

6. Staff:

d) specialists: delete C. G. Stephens, substitute K. H. Nortncote;
add K. E. Lee (soil zoology)

Irrigation Research Laboratory (p.122) 1967

Since August 1967 known as Division of Irrigation Research,
C. S. I. R. O.

Western Australia. Department of Agriculture (p.138) 1967

6. Staff:

e-f) number of scientists, change 9 to 11
other employees, 12, change to field technicians and
assistants, 27

CHILE

Universidad Técnica Federico Santa María (p. 240)

1967

7. add:

- b) maintains the solarimetric archive of Chile, including measurements of solar radiation from 40 stations of the Oficina Meteorológica throughout Chile. Evaluations are sent to WMO solar radiation headquarters in Moscow

EGYPT

Cairo University. Botany Department (p. 9)

1968

o. add M. A. El Kassas

ENGLAND

Directorate of Overseas Surveys (p.141)

1967

3. for last sentence, beginning "Investigation ...", substitute Investigations of natural resources using techniques based on air photograph analysis and field studies are made by the Land Resources Division
4. a) for 1,363,000 sq. miles, substitute 1,432,000, for 203,000 sq. miles, substitute 221,000
b) for sentence beginning "Land Resources Division," substitute Land Resources Division cooperates with overseas governments and international bodies in the investigation of natural resources in developing countries, including some in arid or semiarid regions (e.g. reconnaissance assessments of land resources in northeast Nigeria and Zambia; reconnaissance of irrigation potential in Botswana; ecological survey of Kenya)
5. a) substitute: budget estimated ~~£~~1,274,000 for total operations (1966/67)
b) substitute ... trainees (36, 1966/67) from many countries including Kenya, northern Nigeria, Somali Republic, in the fields of cartography, air survey, computing, photography, and land resource investigations
6. e) staff in post, substitute (1967) 492
7. a) add and a laboratory devoted to soil and leaf analysis
b) add The Land Resources Division is building up a data retrieval system on the subject of natural resources in developing countries

INDIA

Central Arid Zone Research Institute (p. 45)

1968

6. b) for P C. Raheja, Director, substitute Mukhtar Singh
- c) Division of Resource Utilization Studies, for C. P. Bhimaya,
substitute R. N. Kaul

Zoological Survey of India (p. 52)

1968

6. Staff: delete M. L. Roonwal; substitute A. P. Kapur
(Dr. Roonwal is now Vice-Chancellor, University of Jodhpur)

ISRAEL

Israel Meteorological Service (p. 61)

1967

4. Research program: for "detailed studies of the various aspects of precipitation and evaporation," substitute: detailed studies of the arid zone influence on parameters of precipitation and evaporation; influence of irrigation on plant pests, studies of windbreak influence on climatic parameters under arid conditions; topoclimatic changes in an arid environment; air pollution problems under semiarid and arid conditions
6. Staff:
 - d) specialists: delete U. Shafrir (research training); substitute A. Manes (research and training, ad interim)
7. b) for present information, substitute 15,200 volumes, 540 periodical titles

Israel Soil Conservation Service (p. 64)

1967

5. b) add U.S. Weather Bureau research grant of I. £. 200,000 for three years (1967-1970)
6. Staff:
 - d) specialists: add R. Tamir (erosion studies, rainfall-runoff relationships; land use studies); M. Israeli (radiation balance over vegetated surfaces; climate restrictions to plant growth)

Technion. Building Research Station (p. 66)

1967

4. Research program:
 - b) current: add the following details.
 - i) environmental physiology and building climatology; physiological effects of work under heat stress (including solar radiation), effect of building design on ventilation, choice of materials for different climatic types, effect of orientation of classroom on thermal and illumination conditions; use of outgoing radiation for cooling of buildings in deserts
 - ii) corrosion of reinforced concrete; influence of climate on corrosion of reinforcing steel in concrete
 - iii) properties and behavior of fresh and hardened concrete in hot climates: plastic shrinkage cracking, shrinkage of fresh mortars, shrinkage and creep of hardened concrete cast in hot climates, effect of admixtures, effect of prolonged mixing, effect of cement composition

JORDAN

Jordan Meteorological Department (p. 74)

1967

- b) for present information, substitute: collaborates with the National Meteorological Committee (comprising representatives of the Department, the Ministry of Agriculture, the Ministry of National Economics, the Development Board, the Department of Civil Aviation, the Natural Resources Authority, the Aqaba Harbour Authority, the Jordan Royal Air Force)
- 2. Headquarters: Amman Civil Airport, Amman, Jordan
Stations: for present information, substitute 9 synoptic, 54 climatological (including 4 for locust control), 4 agrometeorological (2 dry farming, 2 under irrigation). Remainder of statement as is.
- 4. Research program: add
 - c) planned: experiments on soil moisture including agrohydrological constants, wilting point, weight, field capacity, one evapotranspiration; soil temperature down to 3 m. in depth
- 6. Staff: substitute for present information:
 - b) M. Abu Charbieh, Director
 - c) Ali Abanda (Research Division), In'am Tahboub (Agrometeorological Division), M. Aub-Khader (Climatological Division), Farouk Abdul Rahim (Forecasting Division)
- 7. a) add radiation instruments will soon be installed in the agrometeorological stations
- 8. Publications: add Climatological Data, published monthly since July 1960

MAURITANIA

Institut du Désert (p.20)

1968

Mail addressed to this institution in January 1968 was returned to the University of Arizona, Office of Arid Lands Studies, in April 1968, marked 'inconnu'

NETHERLANDS

International Institute for Land Reclamation and
Improvement

1968

6. Staff:

d) specialists: delete J.A. Van't Leven; substitute S. J. deRaad,
R. J. Oosterbaan

7. b) for present information, substitute : Library resources shared
with other institutions in the Staring Bldg., Wageningen; approx.
11,000 specialized vols., 400 periodicals, and 650 serials. Much
of this material is obtained through international exchange
- c) for present information, substitute: projects recently undertaken
in arid areas include Tchad, Algeria, and Tunis

PAKISTAN

Soil Survey Project of Pakistan (p. 84)

1967

5. delete word "Technical" from U.N. Development Program
6. Staff: delete A.G. Riaz, Counterpart Project Commissioner
d) add G. Higgins, R. Brinkman (survey)

SOUTH WEST AFRICA

Namib Desert Research Association (p. 28-29), now known as

Namib Desert Research Association Company Limited 1968

6. Staff;
 - d) add E. Hoim (biology); K. Schaer (climatology)

7. a) Gobabeb; add first-order weather station of the South African Weather Bureau using data from the profile line of climate stations running from the coast at Swakopmund through the desert via Roobank (100 meters altitude), Swartbank (250 and 468 meters altitude), Gobabeb to Ganab (1000 meters altitude)
 - d) delete last sentence, beginning "All inquiries. . .," and substitute: Since the Station is situated within the boundaries of the Namib Desert Park, all visitors are required to have a permit from the Director of the Department of Nature Conservation and Tourism, South West African Administration, Windhoek. In addition, researchers must make written application three months before visit to the Director, Namib Desert Research Station, Walvis Bay

9. For 1963, substitute 1961

SUDAN

University of Khartoum. Arid Zone Research Unit (p. 33) 1968

6. ~~Executive Committee~~: Chairman, M. A. El Kassas;
Secretary, Visiting Professor M. G. Vavich
under Specialists, ~~Kassas~~ (botany)

(Professor Kassas is now back at the University of Cairo in his permanent post in the Faculty of Science; Dr. Vavich has returned to the University of Arizona, Tucson)

University of Arizona

1968

Institute of Arid Lands Research (p. 209), now known as

Office of Arid Lands Studies

8. Publications; add Deserts of the World: An Appraisal of Research into their Physical and Biological Environments (University of Arizona Press, 1968)
9. Add: In 1967 became part of the newly-created School of Earth Sciences

Geochronology Laboratories (p. 210)

9. Add: In 1967 became part of the newly-created School of Earth Sciences

Laboratory of Tree-Ring Research (p. 212)

9. Add: In 1967 became part of the newly-created School of Earth Sciences

APPENDIX

Errata in
Arid-Lands Research Institutions: A World Directory
(University of Arizona Press, Tucson, 1967;
U. S. Army Natick Laboratories TP No. 152)

- p. vii: last line, for courses, read sources
p. 1: item #9, line 4, for 1950, read 1960
p. 43: item #9, for 1955, read 1890
p. 44: heading, line 1, for Insitute, read Institute
p. 59: for item #8, read #9
p. 108: item #6, for Hilmet Birand, read Himet Birand
p. 162: item #1, b), for National, read Nacional
p. 248: item #1, b), for Agronomicas, read Agronómicas
p. 249: under Algeria, for Univeristé d'Alger, read Université
d'Alger
p. 255: under Peru, line 9, for Fisicas, read Físicas
p. 263: col. 2, for plants, selection for drought-restiance, read
drought-resistance
p. 266: col. 2, for Universidad do Ceará, read Universidade do
Ceará

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13. ABSTRACT This Supplement contains information on institutions not included in the 1967 publication <u>Arid-lands Research Institutions: A World Directory</u> , and furnishes up-to-date information covering changes in data on various institutions represented in the 1967 <u>Directory</u> . Arid-lands research institutions in Australia, Chile, Israel, Jordan, Lebanon, Peru, U.S.S.R., U.S., and West Pakistan is described. Pertinent documentation information is included under FAO (Italy). Changes cover agencies in Argentina, Australia, Chile, Egypt, England, India, Jordan, Netherlands, South West Africa, Sudan, U.S., and West Pakistan. A brief list of errata to the 1967 <u>Directory</u> is appended.		

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	ROLE	WT	ROLE	WT	ROLE	WT
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