

**GOVERNMENT RECLAMATION
WORK IN FOREIGN COUNTRIES:
COMPILED FROM CONSULAR
REPORTS AND OFFICIAL
DOCUMENTS**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649495429

Government Reclamation Work in Foreign Countries: Compiled from Consular Reports and Official Documents by Edward D. McQueen Gray

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

EDWARD D. MCQUEEN GRAY

**GOVERNMENT RECLAMATION
WORK IN FOREIGN COUNTRIES:
COMPILED FROM CONSULAR
REPORTS AND
OFFICIAL DOCUMENTS**

GOVERNMENT RECLAMATION WORK IN
FOREIGN COUNTRIES

COMPILED FROM

CONSULAR REPORTS AND OFFICIAL DOCUMENTS

BY

EDWARD D. McQUEEN GRAY



WASHINGTON
GOVERNMENT PRINTING OFFICE
1909

Eng 1049.09

Harvard College Library

SEP 1 1909
From the
U. S. Government.

CONTENTS.

	Page.
Introduction.....	1
General governmental participation in land reclamation.....	5
Austria.....	5
Belgium.....	8
France.....	11
Germany.....	15
Prussia.....	15
Saxe-Coburg and Gotha.....	19
Wurtemberg.....	19
Italy.....	19
General statement.....	19
Irrigation in northwestern Italy.....	22
The Netherlands.....	25
General statement.....	25
The unwatering of the Zulder Zee.....	30
Irrigation in the Netherlands.....	33
Russia.....	34
General statement.....	34
Irrigation in the South of Russia.....	35
Spain.....	38
Switzerland.....	41
Algeria.....	43
Irrigation in the Tell.....	43
Duty of water.....	45
The Cheurfas barrage.....	45
The Habra barrage.....	46
Irrigation in the Grands Plateaux.....	46
Irrigation in the Sahara.....	46
The drainage of the marshes.....	47
Protection against the floods.....	48
Cape Colony.....	48
Egypt.....	54
The Transvaal.....	57
General statement.....	57
Christiana project.....	60
The water bill of 1908.....	62
Argentina.....	63
Canada.....	66
General statement.....	66
British Columbia.....	69
Dominica.....	70
Ceylon.....	71
Formosa.....	72
India.....	73
General statement.....	73
Private irrigation works.....	75
Bhandara project.....	77
Native methods of irrigation.....	78
Well irrigation.....	78
Extract from the report of the irrigation branch of the public works department of the United Provinces for 1905-6.....	80
Statistics.....	80
Extract from the administration report of the irrigation branch of the United Provinces for the year 1906-7.....	82
Reclamation of waste land through irrigation.....	82

	Page.
General governmental participation in land reclamation—Continued.	
Java	83
Siam	84
Victoria, Australia	85
Land reclamation	87
Reclamation by irrigation	87
Loddon national works	87
Kow Swamp national works	88
Lake Lonsdale reservoir	88
The Mildura trust	88
New South Wales	89
Artesian bores	89
Wentworth irrigation area	90
Murrumbidgee irrigation scheme	90
South Australia	91
The Interstate Commission on the River Murray, 1902	92
Navigation, general water supply and irrigation	94
Legal aspect of state rights and principles to be adopted in apportionment of waters	95
Division of available water among the States	98
Control of the river and its tributaries	98
New Zealand	99
Government participation in drainage and unwatering only, in—	
Denmark	102
Greece	103
Reclamation of Lake Copais	104
Mexico	105
Norway	108
Sweden	107
Reclamation by private enterprise in—	
Brazil	108
Chile	108
China	109
Ecuador	110
Persia	112
Peru	113
Salvador	113
Servia	118
Turkey	114

GOVERNMENT RECLAMATION WORK IN FOREIGN COUNTRIES.

By EDWARD D. McQUEEN GRAY.

INTRODUCTION.

On the 8th of March, 1907, a department circular, embodying a series of questions with respect to the nature and extent of the participation of foreign governments in the reclamation of land by means of irrigation, drainage, and unwatering, was addressed by the Department of State to consular officers abroad. The questions were as follows:

(1) What aid is extended by the Government to districts, municipalities, or private persons in the planning and execution of reclamation, drainage and irrigation works?

(2) Are works in any of these classes executed by the Government, or does the Government aid in their construction by making the necessary investigations and plans or by the contribution of funds, by extending its credit, or by subsidy?

(3) Does the Government, when it contributes to such work, recover its outlay? If so, what provisions are made for reimbursement?

(4) Is there any general law defining the aid which the Government may extend to provinces, to municipalities, to corporations, or to private parties for the execution of works which are to be of more than local benefit; and if so, to what class of work does the same apply? What are the provisions of the law? If convenient, furnish the full text of the law, translated when necessary. If the Government contributes to the cost of such works and the funds thus advanced are to be repaid, what is the rate of interest charged?

(5) To what extent do the districts or corporations or private interests participate in planning and in directing the execution of the works?

(6) What branch of the Government plans and constructs such works?

(7) For what length of time does the management of works in whose construction the Government has aided by financial contribution remain in the hands of the government officials?

(8) What conditions are always or usually imposed when the Government, by general or specific enactment, extends aid to enterprises of the character above named?

(9) How are costs apportioned to the Government, to provinces or States, to districts or municipalities, and to corporations or private individuals in case the Government participates in the execution of an enterprise by advancing the funds in whole or in part for the acquisition of the necessary properties and the construction of works?

(10) Give some specific examples, preferably of land reclamation work by protection against overflow, or by drainage, and of irrigation work.

(11) If a government concession makes land reclamation by irrigation or drainage possible, how and under what restrictions is the land made available for the farmer? In such cases are there any restrictions (1) as to the area of

2 GOVERNMENT RECLAMATION WORK IN FOREIGN COUNTRIES.

public land which can be acquired by any one person, (2) amount of private land benefited held by any one person, (3) as to location of residence of owner on or near the land?

(12) What printed statistical or other material relating to these matters is available?

In reply to this circular 75 consular reports were received and referred to the Reclamation Service as originating the inquiry.

These reports are classified as follows:

I. Affirmative with respect to government participation in land reclamation in general. The substance of these reports is given on pages 8 to 102.

II. Affirmative with respect to government participation in land reclamation by drainage and unwatering only. The substance of these reports is given on pages 102 to 108.

III. Affirmative with respect to land reclamation by private enterprise, but negative in regard to government participation therein. The substance of these reports is given on pages 108 to 115.

IV. Negative in regard to land reclamation in general. It has not seemed necessary to print these reports.

It is to be regretted that returns have not been forthcoming from several countries in which land reclamation plays an important part in national economics, and also that some of the reports submitted were so meager as to be of little value. Others again, while more prolix, being couched in general terms, were not sufficiently precise or technical to be serviceable, either from an administrative or engineering standpoint. On the other hand, several of the reports showed that the writers had taken considerable pains to secure accurate information and these, especially when accompanied by official documents, were all that could be expected. Furthermore, in response to a direct request from the editor, copies of the annual reports of reclamation services were received from a number of foreign Governments; so that this digest, although necessarily concise, is fairly comprehensive.

In summarizing the matter contained in the following pages it may be remarked that no category of public works presents a greater variety of conditions than those which are comprised in the operations of a reclamation service, and that it is consequently impossible to lay down any rigid set of rules for general application; each case is tried and decided upon its merits, and procedure, even within the limits of a single province or canton, will usually be of the pro rata order. The law provides the general principle, but a wide range is permitted in the particular application. Thus, in Prussia, the state subsidy varies between 20 and 60 per cent of the capital outlay; in Italy the syndicate interested may be assessed as little as 20 per cent, or as much as 70 per cent of the total cost; in Cape Colony the government may lend from 25 to 75 per cent of the value of the property at a low rate of interest; while even in India, where government irrigation work is expected to be a remunerative investment, vast reclamation enterprises, which offer no likelihood of being worked at a profit, are regularly undertaken with imperial sanction in the public interest.

Moreover, physical and climatic conditions, and the constituents of soil and water vary not merely between country and country, but between district and district to such an extent that the problems which call for solution in one part of the same country are frequently essentially distinct from those which present themselves in another.

The Lombard plain and Pontine district in Italy; the Zuider Zee and the Kempen in the Netherlands; the Tell and Sahara districts in Algeria are instances of this opposition of circumstances.

Comparison, therefore, between the methods followed in land reclamation in the United States and those pursued in other countries, unless contingently restricted, would in all likelihood prove misleading; and this is especially pertinent with respect to two of the most important items thereof; construction work and water rentals. The experience of the Indian engineers with respect to Smart's shutters and superstructures on weir crests is hardly applicable in a country whose rivers, with few exceptions, have a concentration of silt load less than one-sixth that of the Indus; nor could the masonry work on the Cavour Canal be reproduced here except at a cost to the landholder little short of ruinous. And with respect to rentals—perhaps the most important consideration in any reclamation project—the systems in vogue in those countries where water storage and supply have been a leading factor in economics for many centuries can hardly be regarded in this country for many years to come with other than an academic interest. To attempt to introduce here the system of compound classification of water rentals, which endeavors so to combine the two chief components—value of crop and distance from market—as to produce a coefficient that shall equalize as far as possible agricultural conditions throughout the whole of an irrigation district, would be to give the signal for wasteful and disastrous disputes and bickerings innumerable. Nor is the double fasl system of India, according to which two water rentals—one for the Kharif, the other for the Rabi crops—are obtained from the ryot, feasible or even desirable in this country, where it is usually to the interest of an irrigation system to close the canals during a considerable portion of the year.

It is, however, noteworthy that in the countries governmentally interested in reclamation, all such operations are conducted under a service head of a department of public works. Thus, everywhere abroad we find such naturally correlated problems of national interest as irrigation, drainage, control of water courses, inland navigation, harbor improvements, and the like, assigned to an appropriate division of public works. Sometimes, as in the Netherlands, the reclamation question is so important as to demand the services of a state department to itself; sometimes, as in Italy, irrigation and drainage problems are handled by the public works department in consultation with the ministry of agriculture and industry, both being financially subordinated to the ministry of the treasury; but in every foreign country all matters involving national action of this character are referred to some one branch of the administration specially equipped to deal with them. In this way all questions of water control and supply, which are naturally interdependent, not antagonistic, are studied in relation to one another, and the energy which would otherwise be lost in opposition and rivalry, is conserved and advantageously applied.

Another arrangement which seems worthy of consideration is the provision made in many countries for the evaluation, by means of a competent staff of government engineers, of those enterprises which the Government for various reasons is either not invited or unwilling