

L.L. Somani

**Dictionary of
Irrigation Technology
And
Water Management**

Advisory Board

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Damodar Lenka Suraj Bhan

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Preface

Irrigation is an age old art, as old the civilisation. Irrigation water is supplied to supplement the water available from rainfall and the contribution to soil moisture from ground water. In many areas of the world, the amount and timing of rainfall are not adequate to meet the moisture requirement of crops and irrigation is essential to raise crops necessary to meet the needs of food and fibre. The increasing need for crop production for the growing population is causing the rapid expansion of irrigation throughout the world. Water being a limited resource, its efficient conservation and use is basic to the survival of the ever increasing population of the world.

Our aim today is to increase agricultural production per unit volume of water, per unit area of cropped land and per unit time. Scientific conservation and management of irrigation water provides the best insurance against weather induced fluctuations in total food production.

Irrigation technology and water management is certainly one of the most rapidly advancing of the agricultural sciences and probably no other field has stimulated so many diverse disciplines. The fact that irrigation and water management has attracted scientists from different spheres such as Engineering, Agronomy, Farm Management, Soil Science, Plant Physiology, Meteorology, Soil & Water Conservation, Drainage, Hydrology, Sewerage and Waste

Water Use, Ecology and other scientists of diverse backgrounds to contribute to its development is one of the chief reasons for its prodigious growth. Such growth is of course, accompanied by a proliferation in terminology. Such subject dictionaries like Irrigation Technology and Water Management have fascinated the teachers and the taught everywhere. They stimulate us in knowing the unknown. In fact a dictionary of such a kind has an ocean of information which tries to satisfy us of our unending thirst for knowledge.

While in the process of writing and compilation, we have carefully considered the criticism of this work which have come under our notice, and have adopted all those suggestion which could be taken up, so far as they did not contradict the plan on which this volume was drawn.

It is hoped that the students, teachers, researchers and all those interested in Agriculture will find many of the terms commonly encountered in the field of Irrigation Technology and Water Management defined in this book, and this will encourage the development of a vocabulary which will aid him in pursuing further studies in this fascinating field.

In every volume of similar character to this which we have had to consult, we have found errors, sometimes numerous, occasionally serious. This much larger volume offers a greater chance of error, but we trust that comparatively few errors will be found.

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User's Guide

1. Main Features

- (i) Important relevant terms of local common usage in different countries have been included in the Dictionary for completeness and in order to avoid the inconveniences of having to refer to other sources for their definitions.
- (ii) Where equivalent English terms conveying the intended concept are unknown, terms of other languages in current use have been included.

2. Limitations

- (i) The dictionary is not intended to standardize or "freeze" the usage of terms, and the author, as such, accepts no responsibility for the legal validity of the definitions. It is only a modest first attempt at defining the prevalent concepts of terms in English usage.
- (ii) It is to be recognised that this dictionary is the first tentative effort at giving definitions of terms that are known to have been generally used in the English language so far. It is probable that many terms have been lost sight of, but it is the intention to enlarge and revise the dictionary at intervals of about 2-3 years. The scope would then be widened to cover further terms, particularly with the evolution of new techniques, practices and instruments in the field of Irrigation Technology and Water Management. It is more than probable also that the definitions of terms will be improved, when better definitions are suggested or come to notice sub-

sequently.

- (iii) In order to economise space, words drawn from the same leading word/term have been grouped into paragraphs, thus obviating the necessity of repeating the leading word with its meaning many times over, and only requiring the additional root to be given; occasionally this has led to the intentional neglect of strict alphabetic sequence.

3. Alphabetization

- (i) Terms are alphabetized on word-by-word basis. Abbreviated term take preference over non-abbreviated ones.
- (ii) Subscript, superscripts, and numbers affect the order of entries only if there is no other difference between the entry; apostrophes, commas and hyphens are ignored for the purpose of alphabetization.
- (iii) When a hyphen connects two complete words, or connects a letter and a complete or incomplete word, the hyphen is regarded as a space.
- (iv) When a Greek letter forms a significant part of an entry heading, it is counted as a word.
- (v) All numbers are disregarded in alphabetization. These includes number denoting chemical structure.

4. Form of Entries

- (i) All entries are direct entries. However, types of subclass or parts of the main term follow it.
- (ii) The entries are generally in the singular, with the plural indicated only when necessary.

5. Cross References

Cross references are indicated in CAPITAL letters. Information given in any particular entry is seldom repeated elsewhere. In some cases a complete under-

standing of an entry is dependent on a knowledge of information given in other entries which are indicated by cross reference. In such cases the cross reference(s) frequently forms an integral part of the text, or may be introduced by *See*. In such cases cross references may be used to link one topic with another or to extend the scope of a given topic. In such cases a cross reference is often placed within the text and is preceded by *See also*. Certain entry headings are followed simply by *See* cross reference. Such references only signify that the meaning of the term is given under the heading indicated.

6. Numbered Definitions

In a number of cases a term is used with different meanings by different authors. It may also have different authors. It may also have different meaning in different contexts. For such terms the various definitions are indicated by (1),(2),(3) etc. though all the definitions which can be ascribed to the terms have not necessarily been included. The position in which any given definition appears in the list of definitions is not intended to reflect in any way the appropriateness or frequency of usage of that definition of the term.

7. Statement of Warranty

- (i) The author/editor and members of the advisory board or the publisher are in no way responsible for the legality of the terms and their interpretations. They make no warranty, expressed or implied, as to the accuracy or adequacy of any of the information presented in the writing.
- (ii) Errors called to our attention will be rectified whenever possible.

A

A Bullock Work Unit. It is an average amount of work put up by one bullock in eight hours.

A Frame Ridger. An A shaped wooden implement for making ridges and bunds. Makes larger bunds than the bund former; also gathers soil from a wider strip, and leaves a much smaller furrow besides the ridge. Drawn by bullocks; used in border strip irrigation.

Aberration. A peculiarity of an individual plant usually due to some special environmental factor, and not capable of transmission to the offspring.

Abiotic Factors. Physical, chemical and other non-living components of the environment such as light, temperature, moisture, nutrients and other edaphic factors.

Abnormal Scour. Scour caused by deflected but nevertheless on-flowing currents, as by the river running tangentially to a curve and forming an eddy where river leaves the curve of the protection bund.

Abnormal Water Level. See EXCEPTIONAL WATER LEVEL.

Aboriculture. Intensive cultivation on individual trees, possibly for fruits, mats, gums, resins etc.

Abram's Law. A law discovered by Duff Abram in U.S.A. and earlier (1892) in France by Ferret. It states that the strength of a concrete or mortar depends only on the ratio of the weight of water to the weight of cement in the mix.

Abrupt Wave. A translatory wave or

an increase in depth of water in an open channel caused by a sudden change in conditions of flow.

Absolute Artesian Well. An artesian well which is isolated by sealing from a permeable layer, if it happens to traverse it, overlying the upper confining bed of the artesian ground water.

Absolute Atmosphere. An absolute unit of pressure, equal to one million times the pressure produced on a square centimeter by the force of one dyne.

Absolute Deviation. The absolute value of the difference between an observation or score and any measure, such as the mean used as a point of origin or reference.

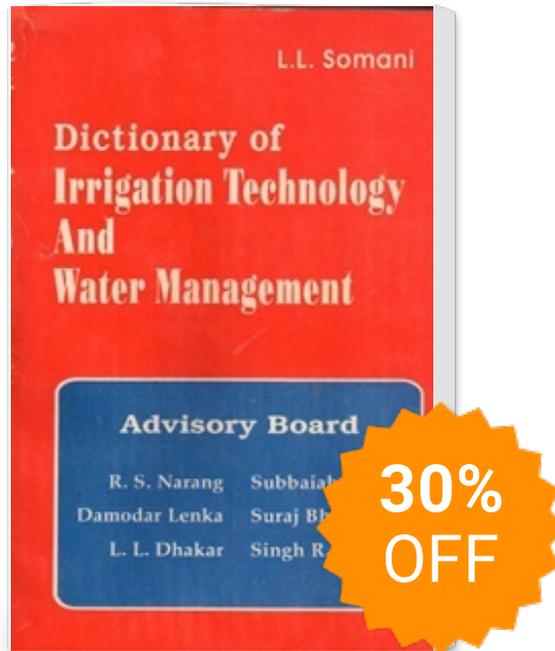
Absolute Drought. A period of at least fifteen consecutive days, none of which has received as much as 0.25 millimeters of rain.

Absolute Growth Rate. The rate of increase in size of a growing plant (or part of it) in a given time, under specific condition.

Absolute Humidity. The mass of water vapour per unit volume of air. It is expressed in grams per cubic meter or in grams per cubic foot. Cold air has a low absolute humidity as compared to warmer. Also see VAPOUR CONCENTRATION.

Absolute Temperature. A scale of temperature based on absolute zero (-273°C), the point at which thermal motion ceases i.e. 0° Absolute or Kelvin (K). Thus- 100°C=173°K. The absolute temperature or Kelvin scale is especially useful in meteorological

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