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RESEARCH REPORT

TRADITIONAL SYSTEMS OF SOIL CLASSIFICATION IN ZIMBABWE

Since independence a large number of researchers have scrambled into the communal lands of Zimbabwe to investigate agricultural production in relation to the physical environment as well as the socio-economic structures of these tribal communities. Many of the researchers are social scientists whose mode of investigation follows a Farm Systems Research approach. Most of the workers, by reason of their training or background, or both, do not have a ready key for translating vernacular expressions for environmental factors into their correct technical equivalents and yet the accuracy of such translations is central to the correct interpretation of the implications of such environmental factors to productivity. This report seeks to establish a key for use by scientists working in communal lands which accurately represents the technical implications of soil names.

Contrary to common belief, the indigenous population of Zimbabwe had a comprehensive system of recognizing and describing soils and edaphological conditions in their environment. Phimister (1975, pp. 13-14) cites references on some of the surprisingly detailed geobotanical criteria used by the Shona for the identification of mineral deposits well before the advent of the Europeans. Ellis (1950, p. 50) noted how, for sodic soils, it was a significant that the natives in that area had dug a drainage furrow down the slope, below the mopani, so that water washing off mopani soils should discharge into a vlei, and not wash on to their productive lands.

These peasant farmers therefore recognized the salinity of mopane soils and identified the soils in relation to vegetation.

PRINCIPLES OF THE SYSTEM

Traditional classifications are of two types. The first used specific names for specific soil types, usually based on colour and texture. These are sound parameters, even in modern scientific terms, and are frequently used by scientists in field descriptions of soils when laboratory data are not available: thus we find in use such expressions as 'red clays', 'brown sandy loams', and others. The second type is an ecological one which describes soils in terms of their edaphic environment, for example, 'vlei' soils, 'mopane' soils (after the tree; Shona mupani), and so on. This ecological approach also is sound and is borne out in the writings of scientists, such as Weaver and Clements (1938, p. 456), who observed that 'The most reliable indicators of the agricultural possibilities of a region are found in the native vegetation'; in the same vein, Vincent and Thomas (1961) did an agro-ecological zonation of Zimbabwe in which soil vegetation associations were widely used as indicators of the agricultural potential of soils.

Of the chemical characteristics, only two were widely used, namely salinity, and organic matter content. These were, of course, not expressed quantitatively but qualitatively on the basis of the taste, smell and appearance of the soil. Examples of these classifications are shown in the Table.
### Table

**CORRELATION OF TRADITIONAL TERMS AND SCIENTIFIC KNOWLEDGE**

<table>
<thead>
<tr>
<th>Names</th>
<th>Description and Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>shapa/sapa bungure</td>
<td>Light sandy soil. Associated vegetation: muzhanje (<em>Uapaca kirkiana</em>), mutsatsati (<em>Faunea</em> spp.), mutunguru/munhunguru (<em>Flacourtia indica</em>).</td>
</tr>
<tr>
<td>rusekanya ruzekeke</td>
<td>Extremely sandy, usually very deep, infertile soil.</td>
</tr>
<tr>
<td>ndoronya</td>
<td>Descriptive of its rheological properties; no strength, and will fail under minimal stress. Light textured, gleyed, hydromorphic soil. Associated vegetation: shrub mukute (<em>Syzygium huillense</em> [Hiern. F. White]).</td>
</tr>
<tr>
<td>tsangararhwe nukangarhwe</td>
<td>Shallow, gravelly, well-drained soils which most respondents described as good for rapoko (finger millet). The preference of this soil for rapoko is related mainly to the drainage and possibly is also because there is less competition from weeds on these stony soils, making them ideal for broadcasting rapoko and practicing minimum tillage.</td>
</tr>
<tr>
<td>chishava</td>
<td>Gravelly red soil, non-arable, good for building on.</td>
</tr>
<tr>
<td>mpunzo rondoro chiomba</td>
<td>Clays that are 'infertile' but good for ceramics. Light grey in colour. Considered to be good indicators of sites suitable for location of wells. Associated vegetation: mukute (<em>Syzygium</em> spp.), muroro (<em>Annona stenophylla</em> [Eng. and Diels]), mtsamvirina (<em>Ficus imensis</em>).</td>
</tr>
<tr>
<td>buktu jiho</td>
<td>Red clays, usually very fertile, very slippery when wet. Associated vegetation: musasa (<em>Brachystegia spiciformis</em>), mutukutu (<em>Pliosigma thomningii</em>).</td>
</tr>
<tr>
<td>gova</td>
<td>Vertisol (black cracking clay). Associated vegetation: muunga (<em>Acacia nilotica</em>), mubaya mhondoro (<em>Acacia polyacantha</em>), kananga (<em>Acacia nigrescens</em>).</td>
</tr>
<tr>
<td>chivavane</td>
<td>Very hard sodic to saline soils, usually a medium grey colour. Poor permeability, as indicated by standing water in the rainy season.</td>
</tr>
<tr>
<td>gokoro</td>
<td>Much paler in colour and more saline than chivavane/isikwaka.</td>
</tr>
</tbody>
</table>

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1 Names of soil types in the Table are given in standard Shona and Ndebele and major dialects, but for the sake of brevity the names of trees are given in Shona only, followed by the botanical name. Ndebele and common English names may be obtained by referring to the dictionary by Wild (1972).

2 Known in both Shona and Ndebele by the slang term 'dhakumuyamu'.

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**Notes:**
- *Uapaca kirkiana* is a plant species native to Africa, known for its wood which is used for furniture, and its bark which is used for tanning leather.
- *Flacourtia indica* is a plant species native to Africa, known for its wood which is used for furniture, and its flowers which are used for making dyes.
- *Syzygium huillense* is a plant species native to Africa, known for its wood which is used for furniture, and its fruits which are used for making juice.
- *Annona stenophylla* is a plant species native to Africa, known for its fruits which are used for making juice.
- *Ficus imensis* is a plant species native to Africa, known for its fruits which are used for making juice.
- *Brachystegia spiciformis* is a plant species native to Africa, known for its wood which is used for furniture, and its fruits which are used for making juice.
- *Pliosigma thomningii* is a plant species native to Africa, known for its fruits which are used for making juice.
- *Acacia nilotica* is a plant species native to Africa, known for its wood which is used for furniture, and its fruits which are used for making juice.
- *Acacia polyacantha* is a plant species native to Africa, known for its wood which is used for furniture, and its fruits which are used for making juice.
- *Acacia nigrescens* is a plant species native to Africa, known for its wood which is used for furniture, and its fruits which are used for making juice.
DISCUSSION

Some of the comments reported in the ‘remarks’ column of the Table show a
great deal of knowledge about the non-agricultural uses of the soils and their
behaviour in those circumstances. The choice of clay for ceramics, for
example, coincides precisely with the mineralogical properties of those clays:
nearly one hundred per cent kaolin, which the modern ceramics industry
prefers for its strength and guarantee against cracking. The selection of well-
sites in relation to the occurrence of certain hydromorphic soils is a
fundamental principle of hydrogeology since the soil properties suggest a very
high water-table in a zone of good recharge.

Very often, where a soil is not good for normal arable agriculture, the
peasant farmer can suggest alternative uses or benefits. For example, while
respondents generally felt that sodic soils were useless for cropping, they are
very good licks for livestock. Similarly, it was suggested that sodic soils can
sometimes be improved or even reclaimed by the addition of anthill soil. Anthill
soils often, but not always, have a substantial amount of calcium carbonate
which is ideal for flushing out the sodium of the more inimical sodic soils.

On the whole, there were fewer Ndebele names for soils of wet
environments than was the case for Shona names. This should not in any way
suggest that the one language has an inherently richer vocabulary than the
other but is merely a reflection of the differences in environmental conditions
as well, possibly, as differences in type of agricultural activity. Much of the
area in which Ndebele is spoken is arid. In addition, the Ndebele have
historically been engaged in livestock activity rather than in arable farming.

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