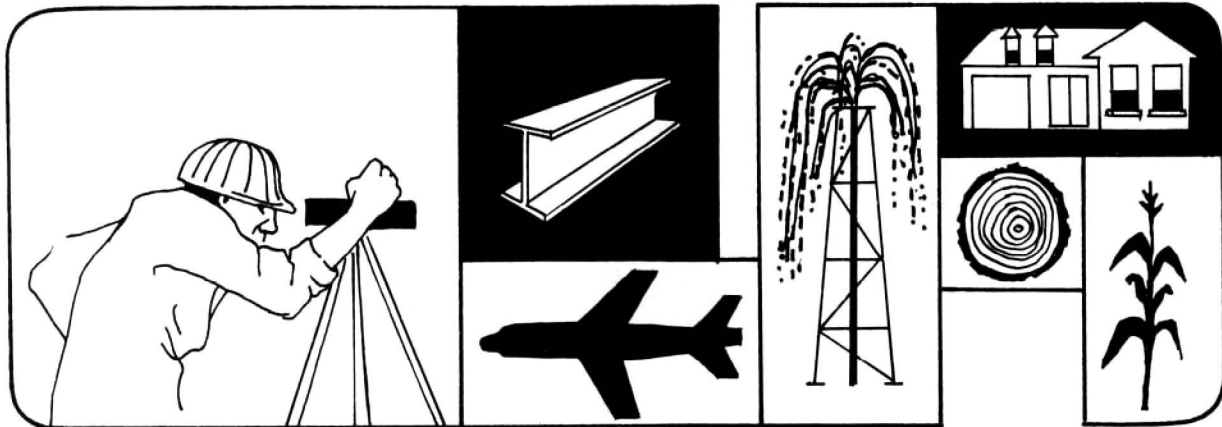


## SUPPLY — RESPONSE VIEWPOINT



Second, the system can be seen from the perspective of the technologist, planner, industrialist, or engineer who must supply man's services through technological developments. This area of interest involves an assessment of the effects of present and future technology on various environmental forestry situations; in other words, measuring the impact of man on his environment.

Examples of major concern within the various development categories (table 1) includes:

- Oil refining
- Mineral processing
- Pulp and paper manufacturing
- Retail outlets
- Shopping centers and malls
- Fossil-fuel electric plants
- Nuclear power plants
- Apartment complexes

- Condominiums
- Single-family dwellings
- Super highways
- Other highways
- Airports
- Sidewalks
- Right-of-ways for pipelines, powerlines, and telephones
- Elementary and secondary schools
- Colleges and universities
- Parks
- Cemeteries
- Public and private land holdings
- Farms
- Strip-mining

When a supply-response point of view is of major interest, the system can be broken into figures 10 to 17 by starting initially with the developments column in table 1. The system flow in this case can be coded:

### DEVELOPMENTS ► EFFECTS ► SERVICES ► LOCALES

Developments begin the flow, and they are subdivided by environmental effects, services, and finally location. For each development in figures 10 to 17, relevant relationships among

environmental effects and developments in particular locations are shown where natural vegetation management may ameliorate adverse environmental effects.

**THE SYSTEM FROM A  
SUPPLY-RESPONSE VIEWPOINT**

A given technological development appears in the center of each figure. Interrelated environmental effects, social services, and locale packages are flow-charted outward from the center by relevant groupings.

Locales shown on the outer rim of each figure are coded as follows:

1. Urban
2. Suburban
3. Exurban
4. Rural

An asterisk identifies high-priority packages. For example, in figure 11 the DEVELOPMENT-EFFECT-SERVICE-LOCALE package labeled 3-5-2-2 is a high-priority package.

## ARRANGEMENT OF THE SYSTEM FROM A SUPPLY RESPONSE VIEWPOINT

TECHNOLOGICAL DEVELOPMENTS USED TO PROVIDE THE SERVICES	ENVIRONMENTAL EFFECTS	SERVICES REQUIRED BY MAN	LOCALES WHERE THE SERVICES ARE PROVIDED
<ol style="list-style-type: none"> <li>1. HEAVY INDUSTRY</li> <li>2. LIGHT INDUSTRY</li> <li>3. POWER</li> <li>4. RESIDENCES</li> <li>5. TRANSPORTATION</li> <li>6. CULTURAL AND INSTITUTIONAL STRUCTURES</li> <li>7. FORESTRY</li> <li>8. AGRICULTURE</li> <li>9. MINING</li> </ol>	<ol style="list-style-type: none"> <li>1. AIR QUALITY</li> <li>2. WATER</li> <li>3. SOIL</li> <li>4. TEMPERATURE AND HUMIDITY</li> <li>5. NOISE</li> <li>6. FLORA &amp; FAUNA</li> </ol>	<p>PHYSICAL INFRA-STRUCTURE</p> <ol style="list-style-type: none"> <li>1. WATER SUPPLY &amp; WASTE DISPOSAL</li> <li>2. ENERGY PROVISION</li> <li>3. TRANSPORTATION</li> <li>4. HOUSING</li> <li>5. FLOOD CONTROL</li> <li>6. RECREATIONAL STRUCTURES</li> </ol> <p>INSTITUTIONAL INFRA-STRUCTURE</p> <ol style="list-style-type: none"> <li>7. EDUCATION</li> <li>8. EMPLOYMENT</li> <li>9. HEALTH &amp; WELFARE</li> <li>10. RECREATIONAL ACTIVITY</li> </ol>	<ol style="list-style-type: none"> <li>1. URBAN</li> <li>2. SUBURBAN</li> <li>3. EXURBAN</li> <li>4. RURAL</li> </ol>

FIGURE 10

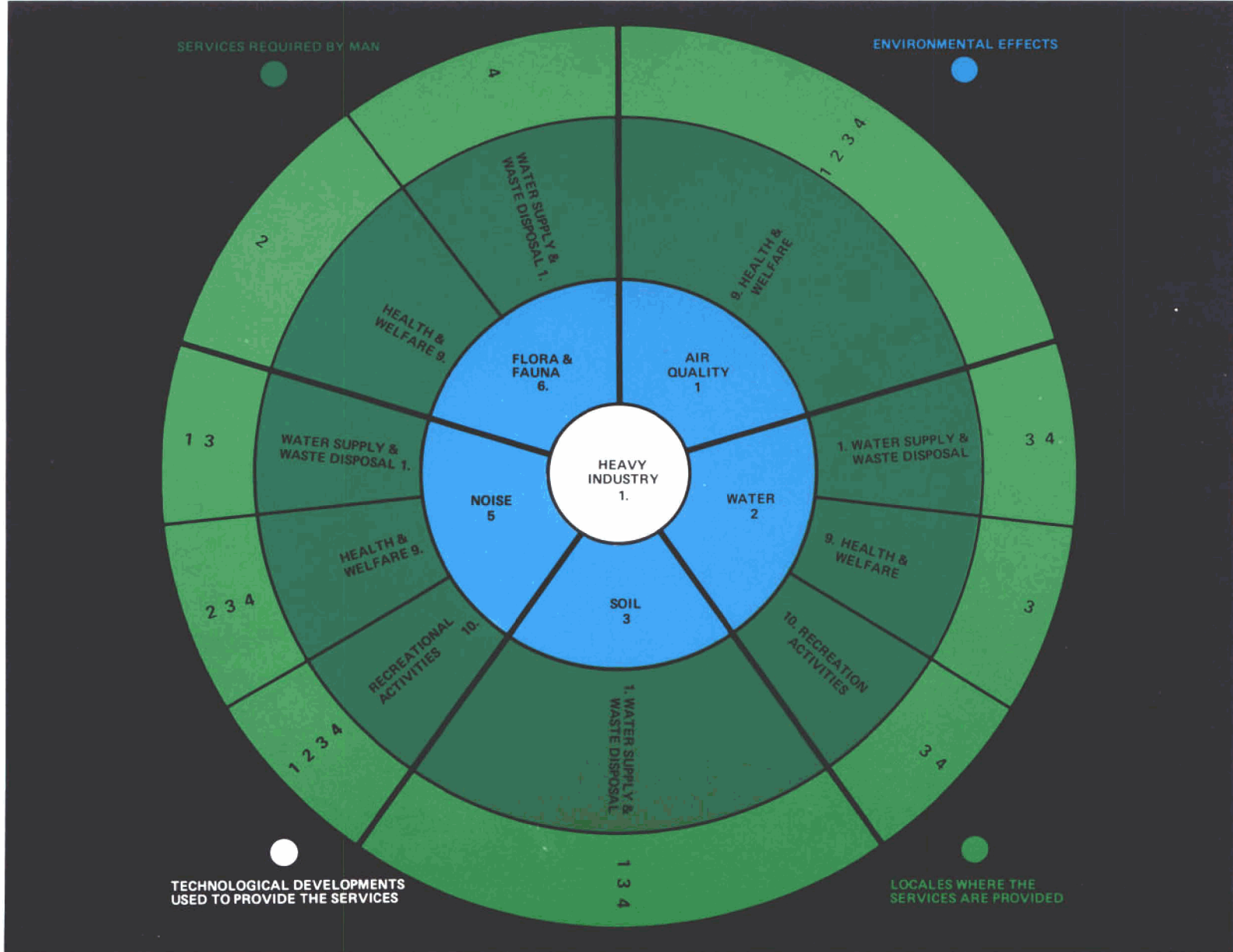


FIGURE 11

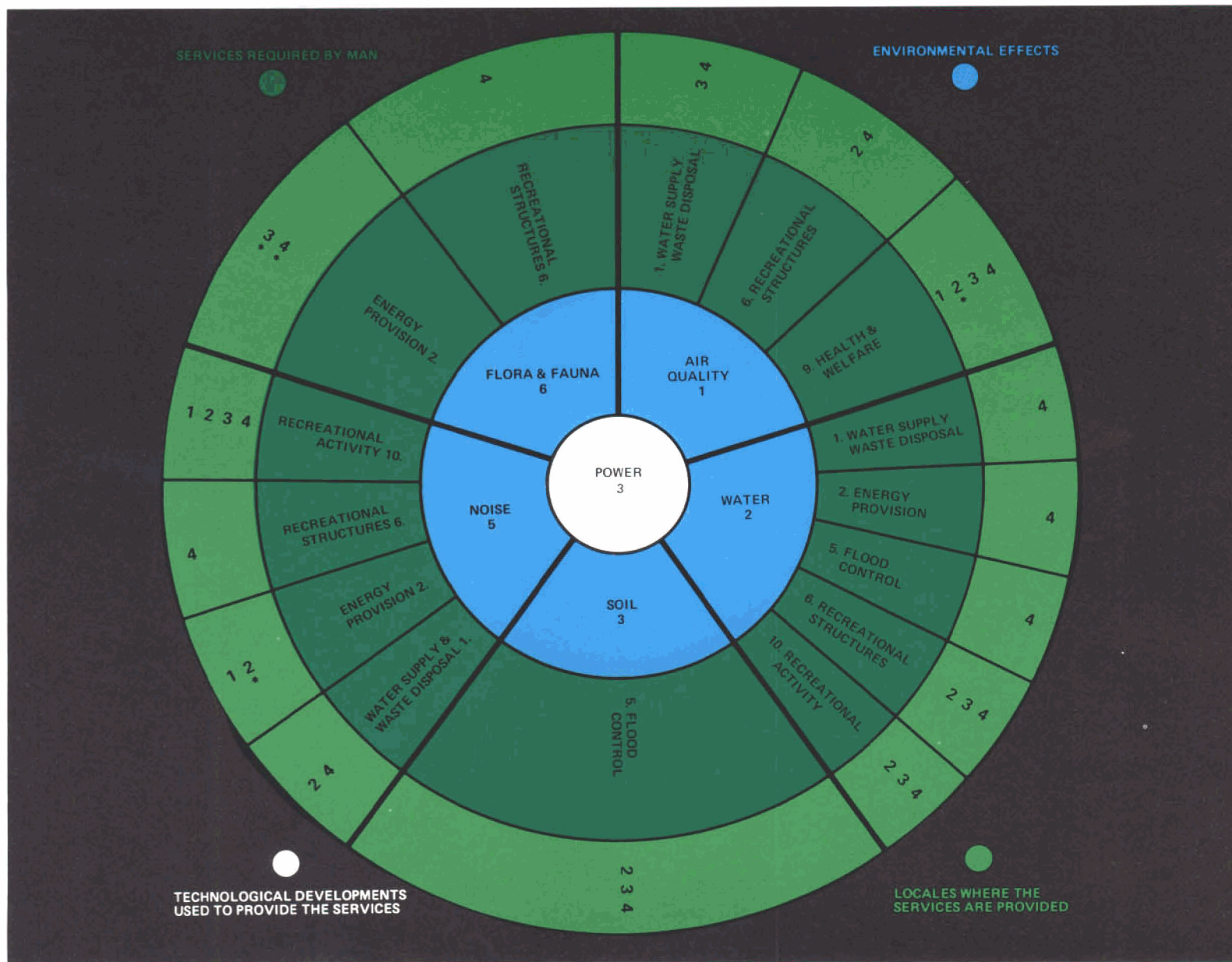


FIGURE 12

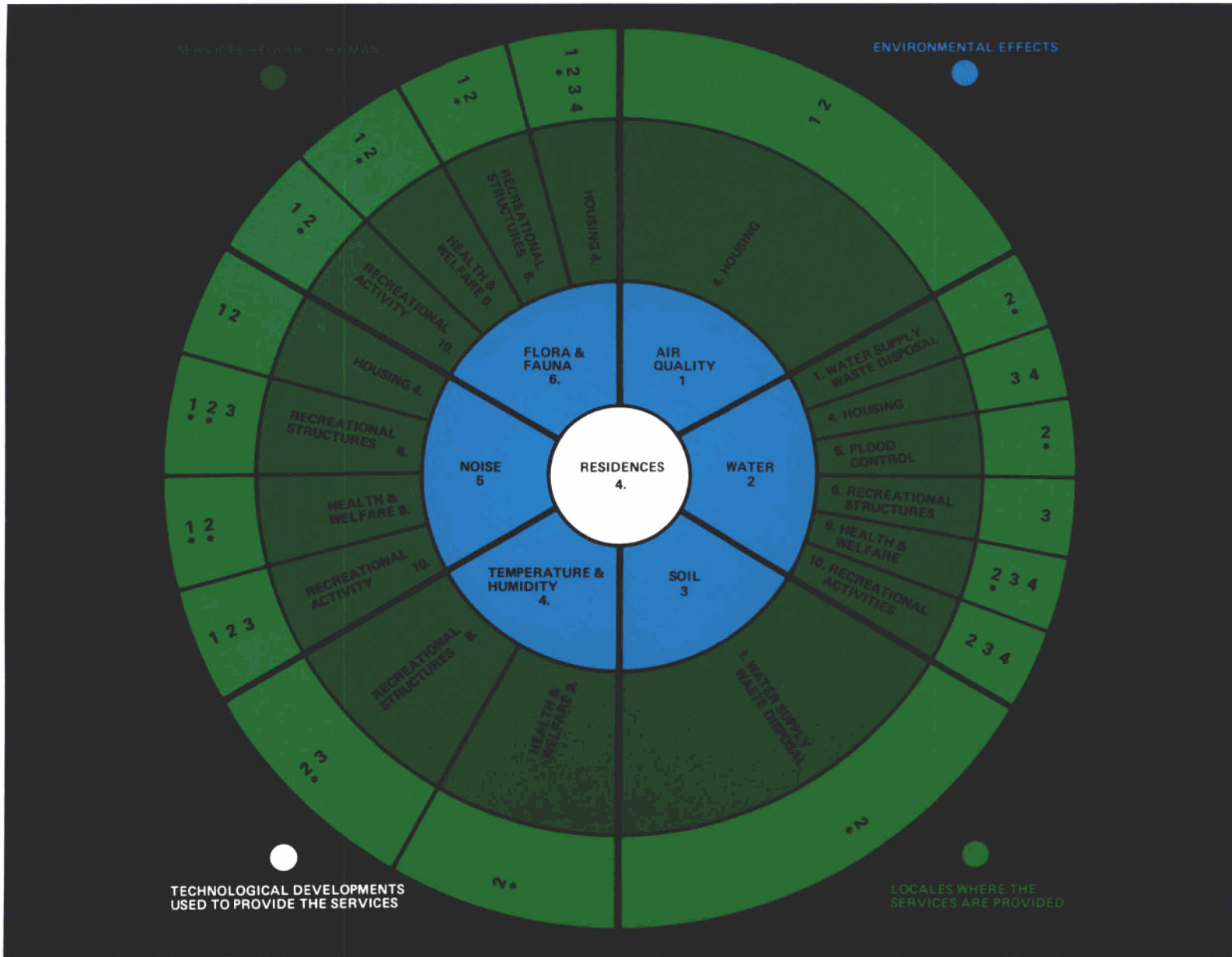


FIGURE 13

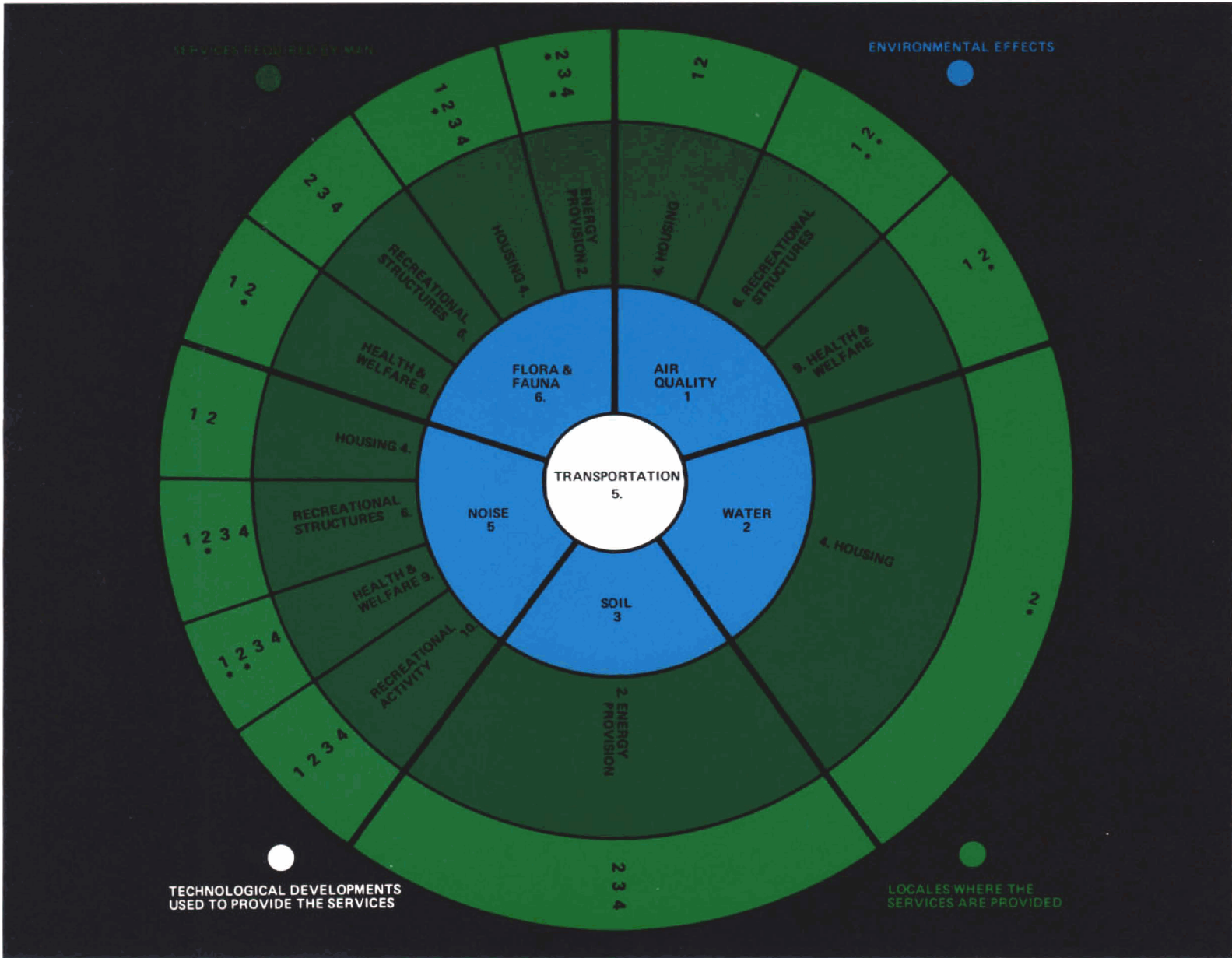


FIGURE 14

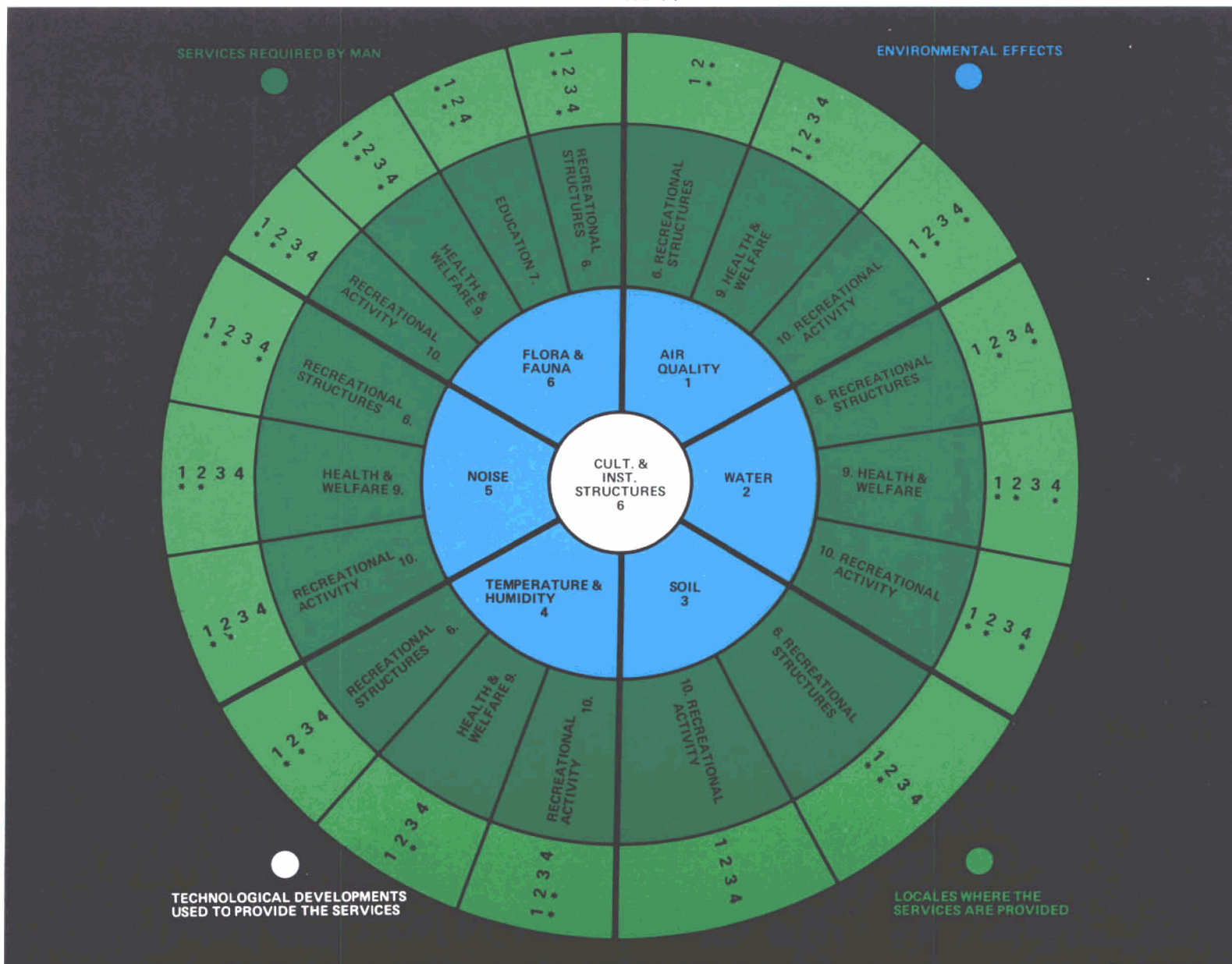




FIGURE 15

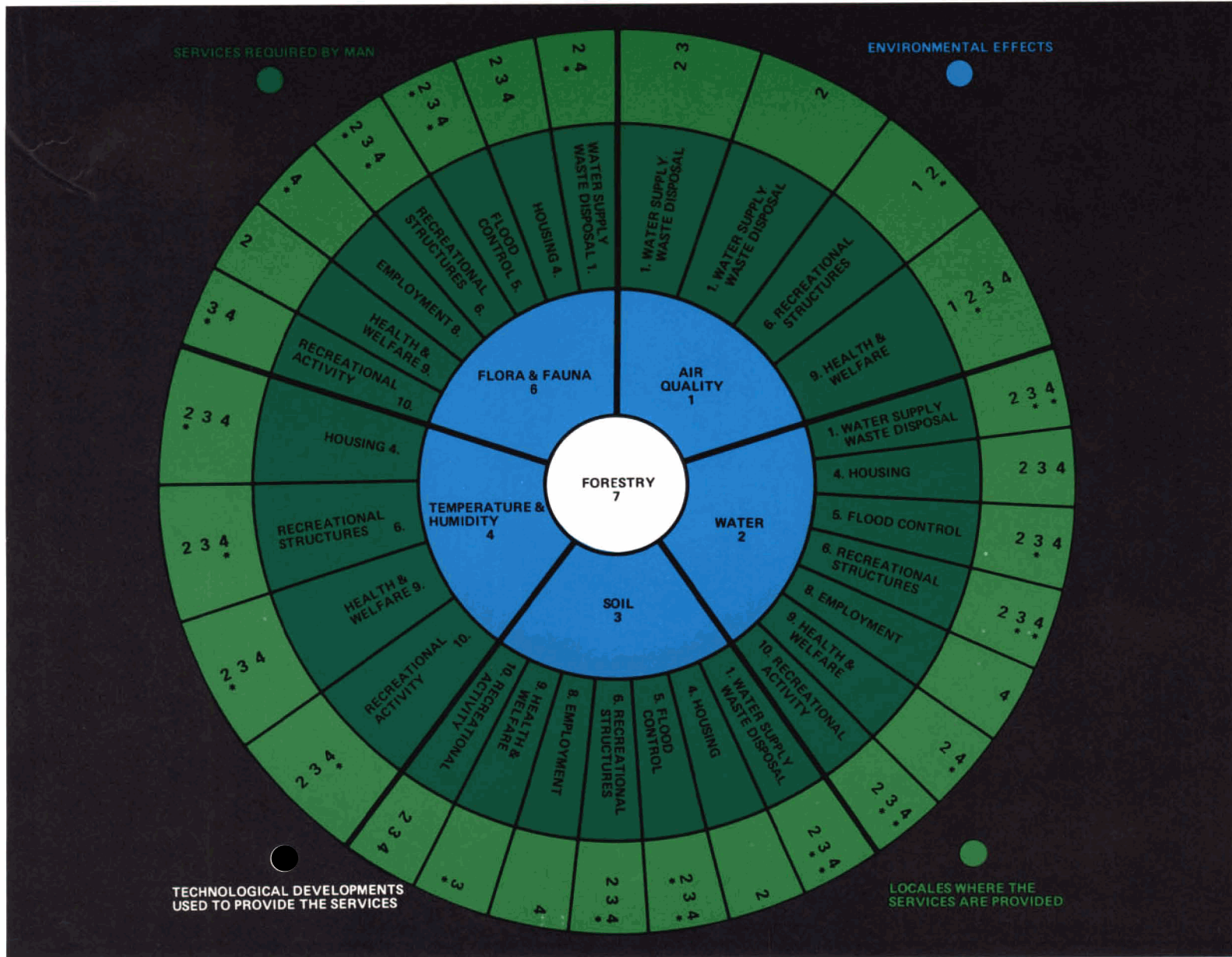
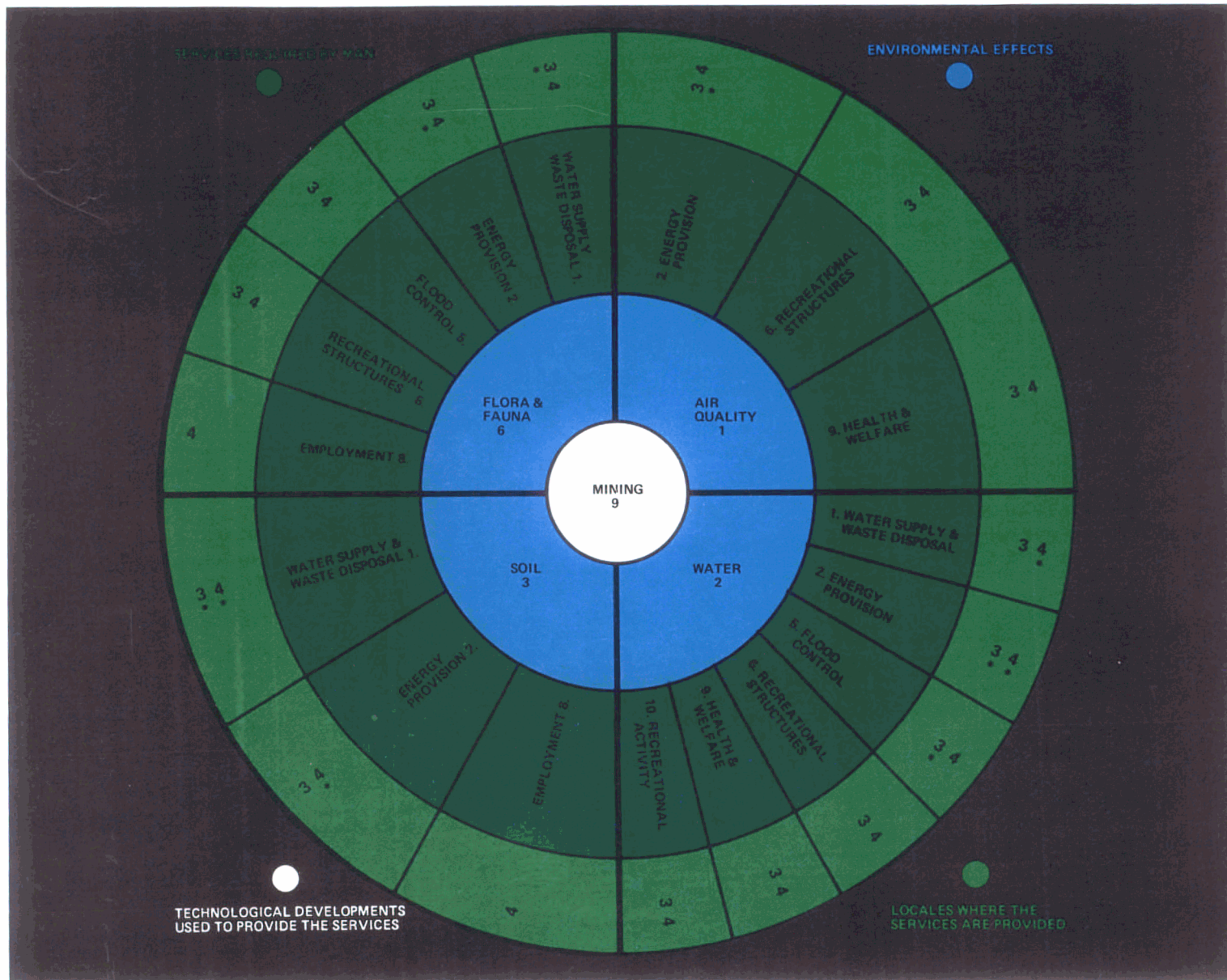


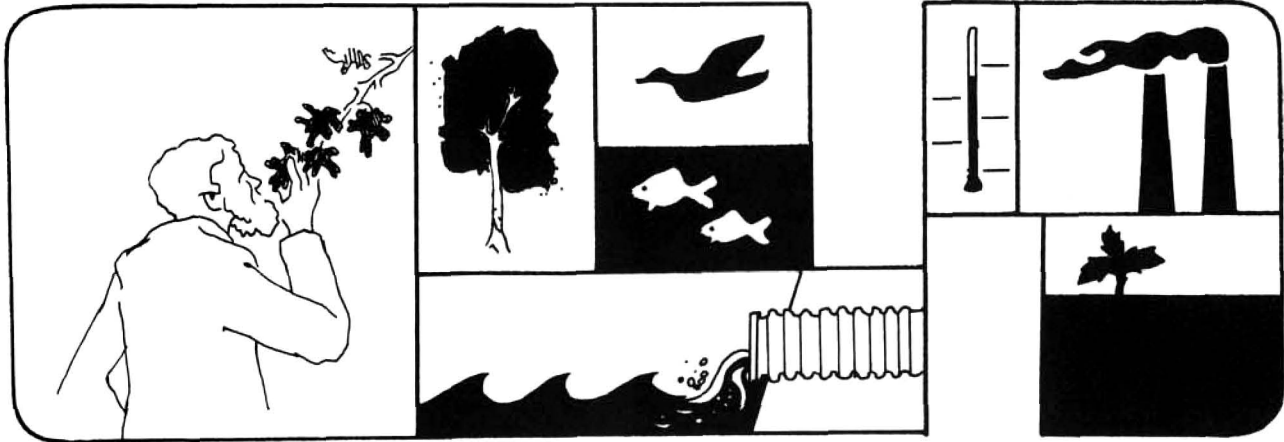
FIGURE 16



FIGURE 17



## ENVIRONMENTAL – EFFECTS VIEWPOINT



And finally, the system can be examined from a research-administration perspective or from the viewpoint of the ecologist who is interested primarily in assessing the impact of the environment on man. Associated with one or more of the environmental effects listed in table 1 are such elements as:

- Chemical properties
- Mechanical properties
- Particulate matter
- Odor
- Stability
- Color
- Micro-organism counts
- Water-holding capacity
- Rate of flow
- Turbidity
- Relative humidity
- Precipitation
- Wind speed
- Macroclimate
- Microclimate

- Decibel reduction capabilities
- Overstory density
- Understory density
- Mammals
- Birds
- Insects

Various combinations of all environmental effects contribute to the aesthetic quality of an environment. For this reason, aesthetic quality was not listed as an individual item in table 1. We assumed that the aesthetic quality of an environment results from a composite effect of various components throughout the environmental factors listed under environmental effects. Aesthetic quality needs to be considered in any given combination of the four components of the system.

From the environmental-effect viewpoint, we key first on the environmental-effect column of table 1, and separate the system into six figures, 18 to 23. The system flow in these figures is coded:

EFFECTS ► SERVICES ► DEVELOPMENTS ► LOCALES

Environmental effects are subdivided by services, developments, and finally by locale.

**THE SYSTEM FROM AN  
ENVIRONMENTAL-EFFECT VIEWPOINT**

A given environmental effect appears in the center of each figure. Interrelated social services, technological developments, and locale packages are flow-charted outward from the center by relevant groupings.

Locales shown on the outer rim of each figure are coded as follows:

1. Urban
2. Suburban
3. Exurban
4. Rural

An asterisk identifies high-priority packages. For example, in figure 18 the EFFECT-SERVICE-DEVELOPMENT-LOCALE package labeled 1-2-9-3 is a high-priority package.

## ARRANGEMENT OF THE SYSTEM FROM AN ENVIRONMENTAL EFFECTS VIEWPOINT

ENVIRONMENTAL EFFECTS	SERVICES REQUIRED BY MAN	TECHNOLOGICAL DEVELOPMENTS USED TO PROVIDE THE SERVICES	LOCALES WHERE THE SERVICES ARE PROVIDED
<ol style="list-style-type: none"> <li>1. AIR QUALITY</li> <li>2. WATER</li> <li>3. SOIL</li> <li>4. TEMPERATURE AND HUMIDITY</li> <li>5. NOISE</li> <li>6. FLORA &amp; FAUNA</li> </ol>	<p><b>PHYSICAL INFRA-STRUCTURE</b></p> <ol style="list-style-type: none"> <li>1. WATER SUPPLY &amp; WASTE DISPOSAL</li> <li>2. ENERGY PROVISION</li> <li>3. TRANSPORTATION</li> <li>4. HOUSING</li> <li>5. FLOOD CONTROL</li> <li>6. RECREATIONAL STRUCTURES</li> </ol> <p><b>INSTITUTIONAL INFRA-STRUCTURE</b></p> <ol style="list-style-type: none"> <li>7. EDUCATION</li> <li>8. EMPLOYMENT</li> <li>9. HEALTH &amp; WELFARE</li> <li>10. RECREATIONAL ACTIVITY</li> </ol>	<ol style="list-style-type: none"> <li>1. HEAVY INDUSTRY</li> <li>2. LIGHT INDUSTRY</li> <li>3. POWER</li> <li>4. RESIDENCES</li> <li>5. TRANSPORTATION</li> <li>6. CULTURAL AND INSTITUTIONAL STRUCTURES</li> <li>7. FORESTRY</li> <li>8. AGRICULTURE</li> <li>9. MINING</li> </ol>	<ol style="list-style-type: none"> <li>1. URBAN</li> <li>2. SUBURBAN</li> <li>3. EXURBAN</li> <li>4. RURAL</li> </ol>

FIGURE 18

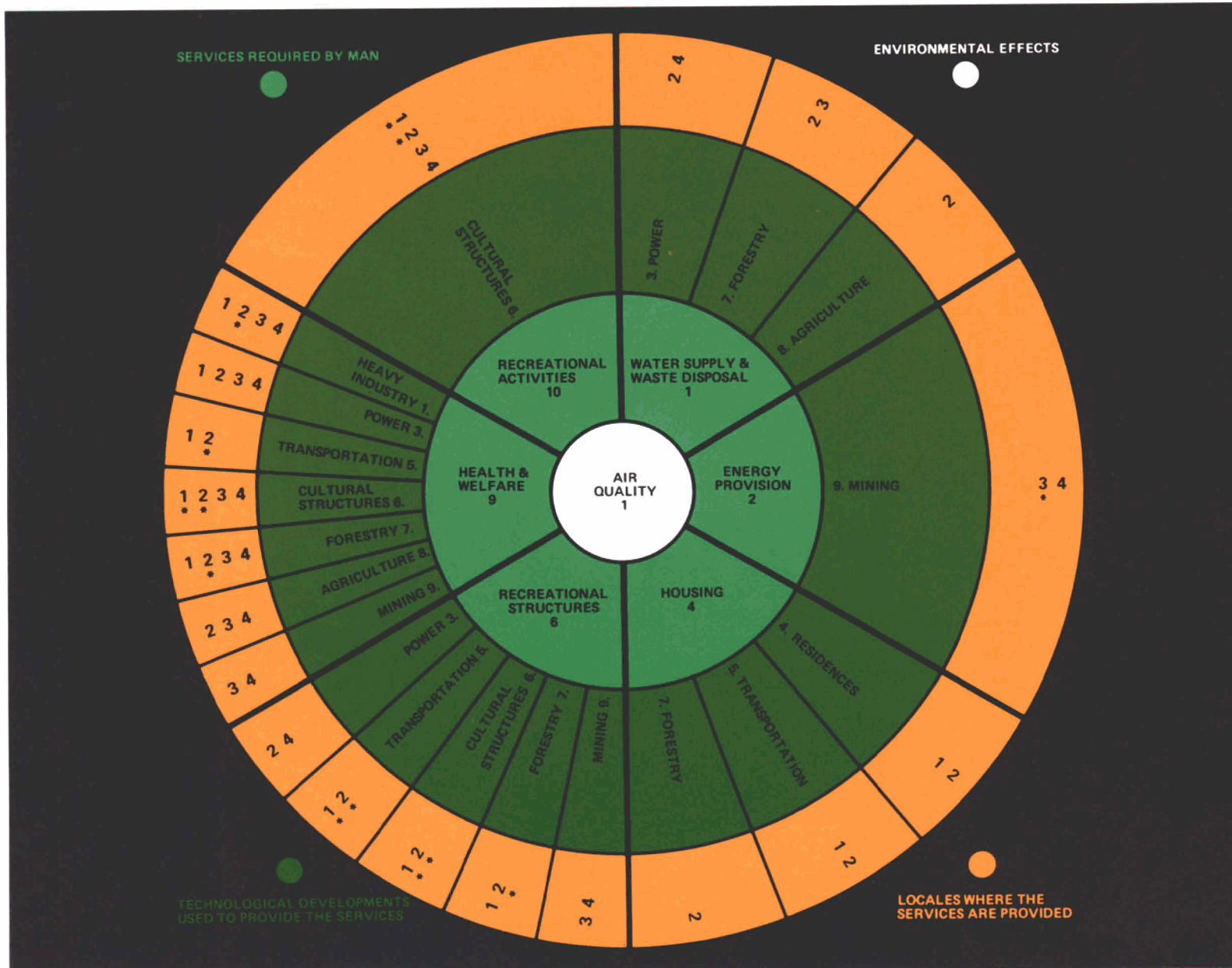


FIGURE 19

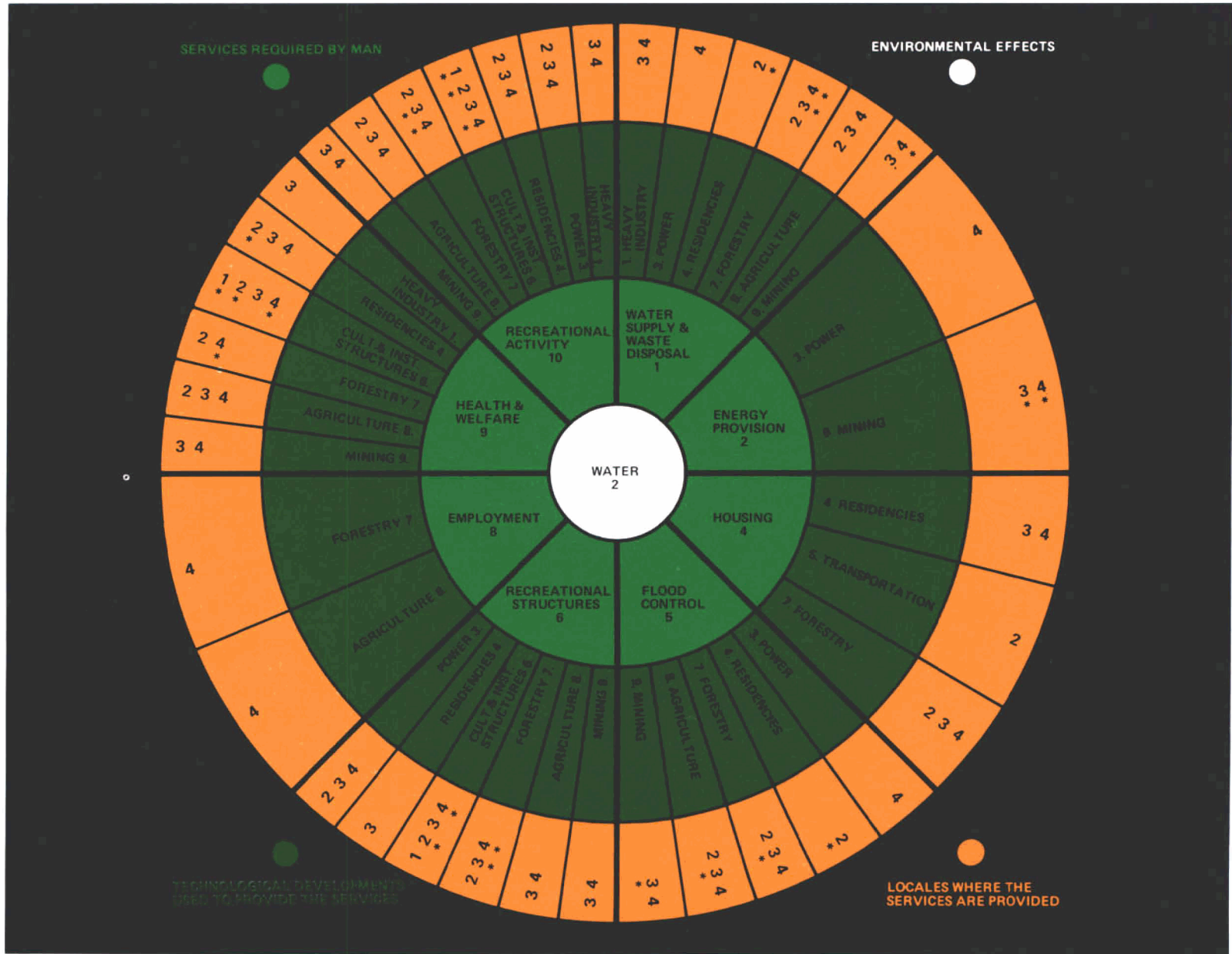




FIGURE 20

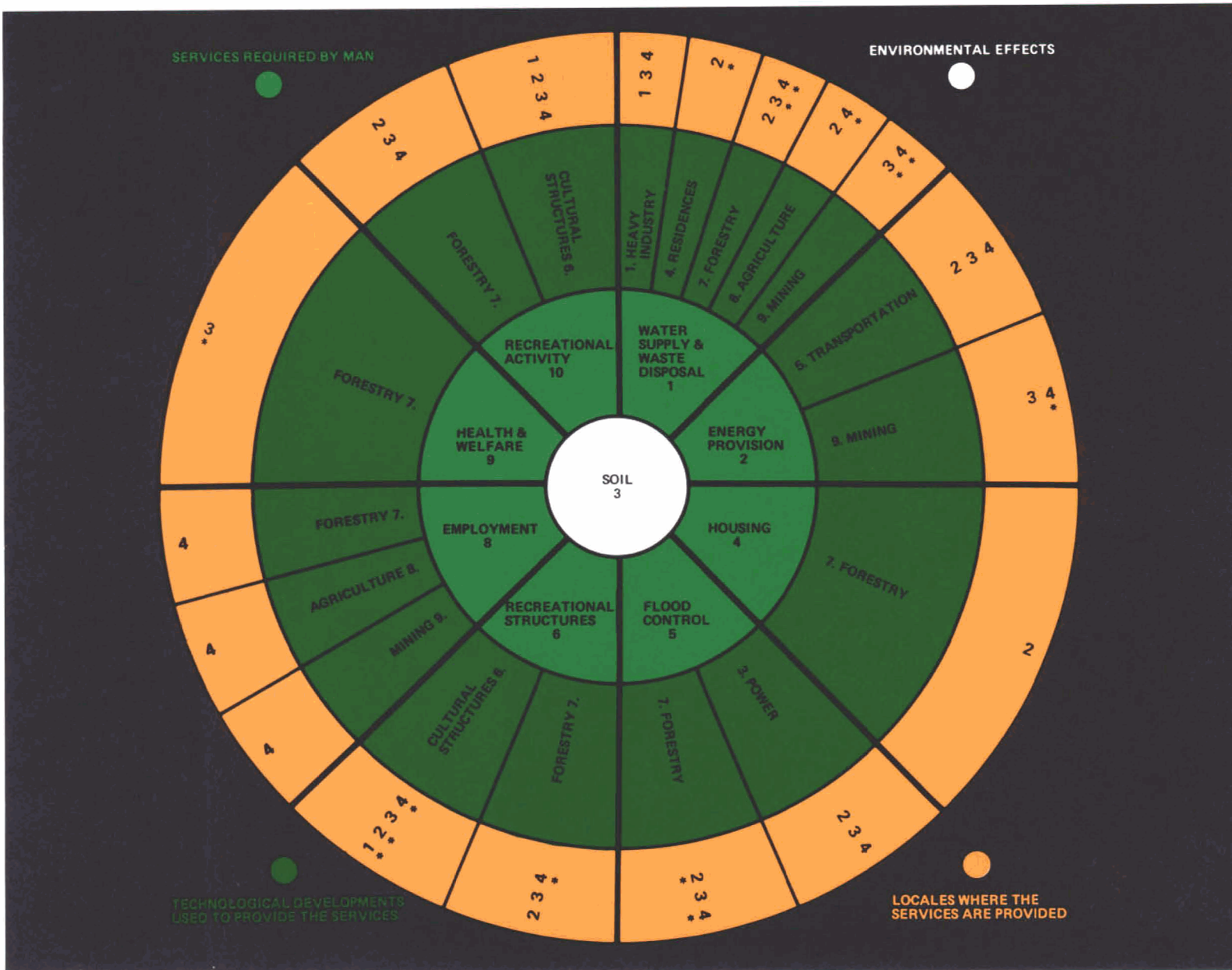


FIGURE 21

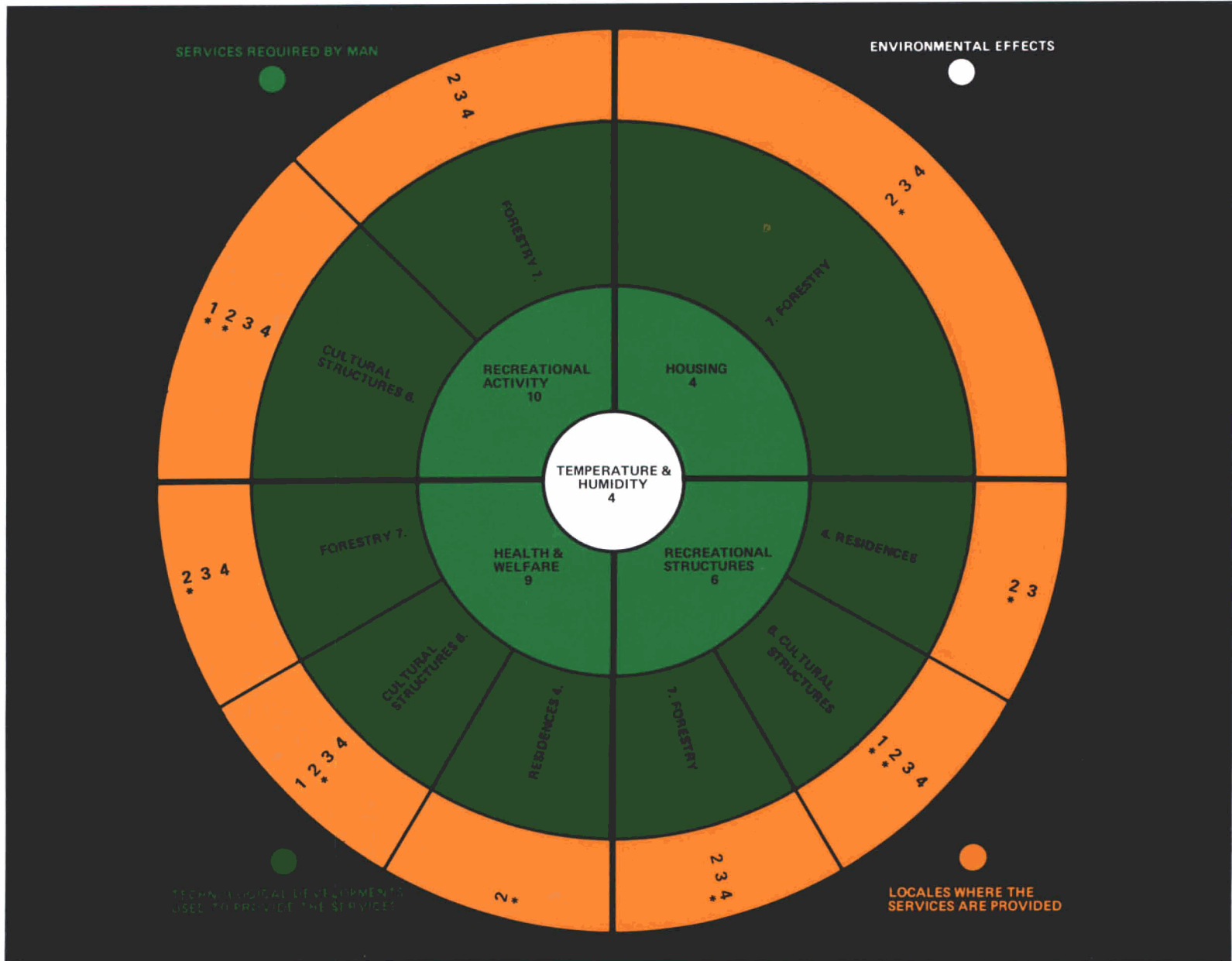


FIGURE 22

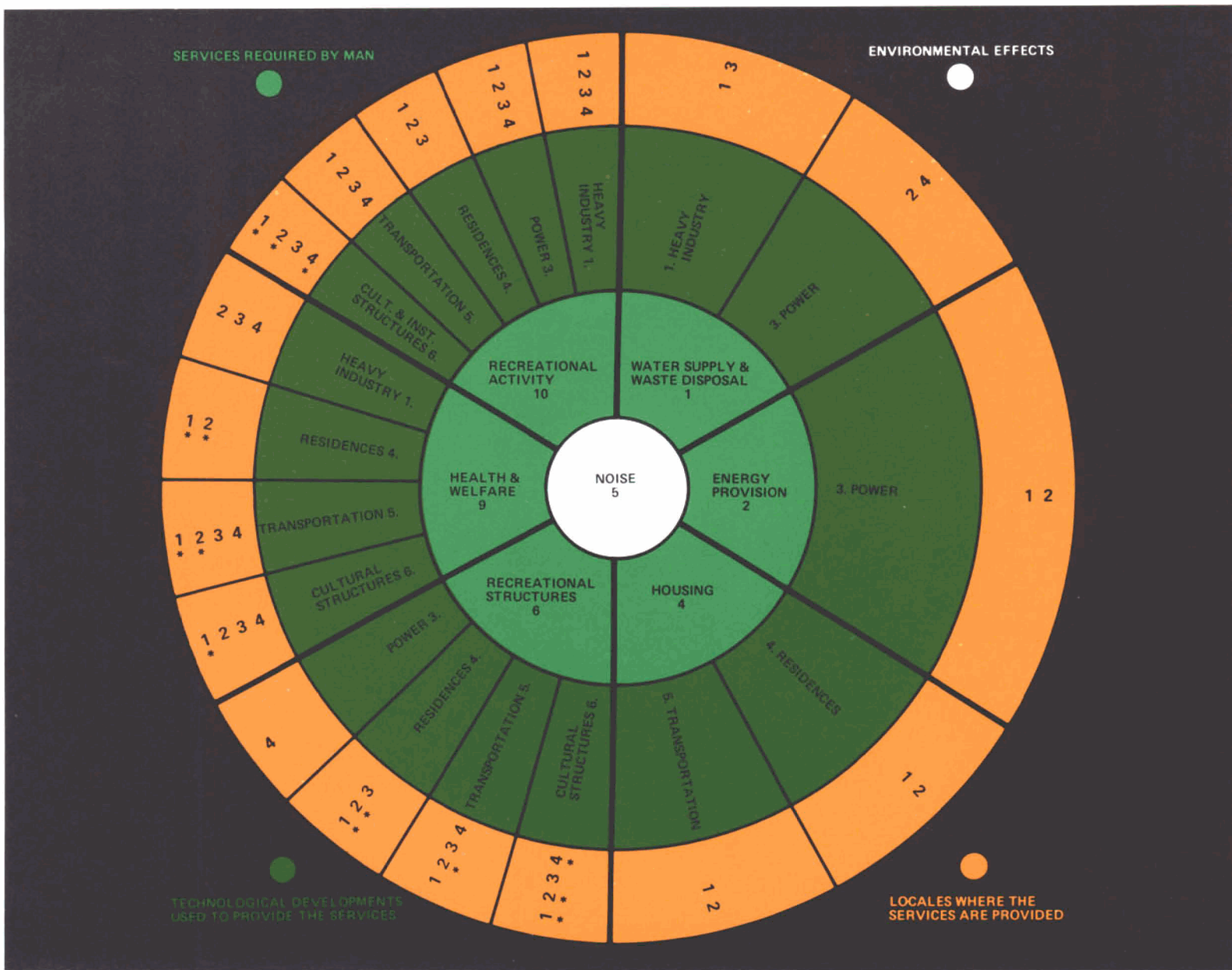


FIGURE 23

