The first criterion is the sensitivity of the various natural and man-made systems to acidic deposition. (The concept of sensitivity is explained in more detail in sections 3.5 and 4.5 of this report). The sensitivity of aquatic ecosystems is a function of soil characteristics, bedrock geology, topography, and alkalinity of the receiving waters. The sensitivity of terrestrial ecosystems is a function of soil characteristics and management practices and bedrock geology. It should be noted that even if a forest ecosystem is not in a sensitive area, its foliar system may still be affected by acidic deposition. The sensitivity of man-made structures is a function of the specific material and the mitigation measures undertaken by man. For example, the sensitivity of metals is a function of their composition and of the surface platings or coatings of corrosion resistant materials. Calcareous stone and masonry are sensitive materials unless protected.

The second criterion is the intensity of acidic deposition. Wet sulphate deposition is used herein as an indicator because data are available and because wet sulphate deposition is clearly an important contribution to overall acidification. Other factors, (e.g., dry deposition, nitrates, and seasonability of deposition), are known to affect the acidification potential of deposition, but an indicator which combines all of those factors is not yet available. It is known that ambient sulphur dioxide concentration is a more appropriate indicator of the potential damage to materials than wet sulphate, so SO_2 is used in place of sulphate when considering materials. Wet sulphate deposition is divided into three ranges as shown in Figures 8-1a and 8-1b: low (10-20 kg/ha.yr), moderate (20-40 kg/ha.yr), and high (greater than 40 kg/ha.yr).

The use of the data on resource distribution, sensitivity and deposition intensity to define resources potentially at risk is best explained by a simple graphic (Figure 8-2). Each data category (e.g., resource distribution, sensitivity and deposition) constitutes one set. Any overlap of the three sets defines the resource potentially at risk. Thus, the inventories provide information on the quantity and nature of resources within each of the three deposition zones. In the case of aquatic resources, this is supplemented by estimates of the potential of the soils and bedrock to reduce (or buffer) acidity.

The estimates of resources at risk presented in the following sections are based on steps 1 to 3, (i.e., inventory, sensitivity, and exposure; page 8-1) and are illustrated in Figure 8-2. Steps 4 to 6 (i.e., response, mitigation, valuation), as well as better data for steps 1 to 3, will further reduce the amount of the resource of interest in evaluating an emission reduction measure. It should be clear from the other sections in this report that our ability to perform steps 4 to 6 is limited at present. Therefore, the estimates below should not be interpreted as representing the value attributable to a deposition control measure, but rather as categories of