

- Integration of research and guidance at the top of the hierarchy, thus allowing joint planning of research projects and dissemination of research results based on national needs;
- High level concern for both research and extension at the sub-cabinet level; and
- Effective coordination at the village through the county administration.

The integrative aspects of the Korean agricultural research and extension program can thus be considered a model developmental system fostering a remarkable level of implementation.

It is this strength, however, that leads to an elemental weakness in the Korean system. Although such a system could theoretically be considered potentially productive in any national bureaucracy, in the Korean context it has worked effectively because of the strong hierarchical nature of Korean society that drives compliance with objectives set from above. Thus each level of the bureaucracy responds with a virtual frenzy of activity to achieve the targets, and quite often they are successful. The drive for implementation, however, has demonstrably resulted in short-term effectiveness but with much less assurance of longer-range continued success. Massive spraying of pesticides and herbicides has dramatically increased yields, but the longer-range effects of pollution and disease are now being increasingly noted in the Korean press. It may be that such revelations have specified non-priority crops, such as fruits, either because they are more apparent or because they do not conflict with governmental priorities.

The introduction of the Tongil high yielding varieties of rice was massively encouraged throughout the country, and hundreds of tons of seed were airlifted to Korea from the Philippines for this purpose. Yet rice blast (fungus) has been known to be a problem with the new varieties of rice after a few years of cultivation, and early project documentation mentioned the susceptibility of Tongil to cold. In an effort to raise production these potential damages, if not overlooked, were not sufficiently anticipated by the bureaucracy, although key researchers warned against them. It was the overdependence on Tongil rice and its effective distribution through the guidance system that brought about both Korean self-sufficiency in rice and the highest per hectare rice yields in the world, as well as the crop disaster of 1980 due to cold weather. Better overall results might have been achieved had the government been less insistent on its political goal of rice self-sufficiency (Korea had the foreign exchange to import twice the amount grown with the same funds it paid to farmers), followed more prudent dissemination policies, and concerned itself with a continuing, effective, adaptive research program.

President Chun Doo-whan in May 1981 called for self-sufficiency in food production. This goal is a political objective that under present circumstances cannot be met. Even with self-sufficiency in rice and an