

Flood Control in Indiana

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The 84th General Assembly of the State of Indiana passed Enrolled Act No. 174, Senate, and it was approved March 7th, 1945. This Act created the Indiana Flood Control and Water Resources Commission. It was the outgrowth of a semiofficial commission appointed by Governor Schricker a year or two previous for the purpose of studying Indiana flood situations and to determine how the flood problem should be attacked.

The Indiana Flood Control and Water Resources Commission is a bi-partisan body whose members number nineteen and are appointed with staggered terms. From this body of nineteen men, the Governor names nine who are known as the Executive Committee. The Executive Committee organizes itself with a Chairman and Vice Chairman. Its Secretary is employed by the Commission with the approval of the Governor.

The present commissioners live in all parts of the State of Indiana. They are attorneys, engineers, business men—men of many professions and many commercial pursuits. They are therefore representative of the people in the state not only by localities but also by vocations and occupations.

In addition to the Secretary, the Commission employs a chief engineer and a staff of clerical and engineering personnel. The engineering staff at the present time includes an office engineer, investigation engineer, a field engineer, a geologist, a field survey party of six men, two secretaries, two computers and three draftsmen. The Commission also employs a consulting engineer.

Because of the limited area of the state which is covered by U.S.G.S. topographic mapping, the Commission has purchased aerial photos to cover the entire state and index maps for all the counties.

Authority

The Indiana Flood Control & Water Resources Commission was given rather wide authority by the Indiana legislature. It is given authority over all public and private waters, both surface and underground. The Commission is charged with the responsibility of preparing for the state a master plan for flood control and water resources. It is given the authority to regulate all kinds of building in the floodway of Indiana streams where flood planning may be affected. No dam can be built in any stream without the Commission's approval in regard to its interfering with flood planning. It is not possible for power companies to construct plant sites on the valley floor of any stream without clearance from the Flood Commission. Individuals may be stopped from building homes or buildings of any kind in the Flood zones. Cities or industries or individuals may be prevented from encroaching upon the

channels of streams by filling in over the banks. The Powers of the Flood Commission will permit it to set up a system for regulating the construction of bridges by various government departments, by railroads, and others.

In the 85th General Assembly, which was concluded only a few months ago, an act known as the "Conservancy Act" was passed, which makes it possible for areas in the state, no matter how small as long as they are not entirely enclosed in any city or town corporate limits, to form a conservancy district for the purposes of solving any water problem or a combination of several water problems. The conservancy district must provide an official plan which is approved by a conservancy court set up by this act. For the execution of this official plan, the conservancy district may raise funds by assessment of lands in the district and may issue bonds in order to defray the cost of construction. The Indiana Flood Control & Water Resources Commission is given the responsibility of passing on the official plans of such conservancy districts. The purpose of this act was to make it possible for areas in the state to raise local funds for the purpose of cooperating with the U. S. Corps of Engineers in the construction of work for flood control, water supply, sanitation, recreation and for other purposes. This act was patterned after an act passed by the State of Ohio many years ago, under which the Miami Conservancy District and the Muskingum Conservancy District were created and their works constructed and presently operated.

The Commission has all authority to enter into and over any property in the state for the purpose of flood control surveys and for other purposes related thereto. It has a prior right of eminent domain and can condemn property for the purposes of flood control as it finds it necessary.

The Commission has had numerous occasions on which to exercise its authority and it has chosen to bring about the right kind of relationship with the public by using more persuasion than force. Difficulties arise in connection with levee districts and other flood works, which the Commission arbitrates or otherwise settles with little difficulty. It has been called upon to approve the plans of a power company which is now building a new \$10,000,000 power plant on the valley floor of White River within thirty miles of Indianapolis. Another such case is pending. There are many cases throughout the state of encroachment upon the channels by industries and by city dumps. These encroachments must be dealt with. It is encroachment of this kind that has gone on in the past which is responsible in part for our present dilemma. I am confident, too, that a great deal of retardation is being incurred in the streams by the building of bridges which are inadequate insofar as floodway is concerned. We are working on several new cases of this kind at this time.

Indiana's Program

When I first came with the Commission, I was accosted by a gentleman who is in charge of an office in the same building with us, on the grounds that flood control planning is all unnecessary if we do the thing which should be done, in his estimation, namely, to move out of the floodways all industries, dwellings and developments which had no

business being built there in the first place. The farther I go with flood planning, the more I am convinced that there is a great deal of validity in his contention. However, we do not expect to move cities, people, industries and certainly not farms and the farmers, out of the river valleys bodily. That this is a difficult method of dealing with floods is shown by several instances. One community in Indiana, Leavenworth on the Ohio River, the Red Cross rehabilitated after the 1937 flood by moving it out onto the bluffs overlooking the Ohio River. Last week I went down into the old town of Leavenworth and was not surprised to find a dozen or more families living in the same old houses, which were completely covered by the 1937 flood,—some of the houses even shifted on their foundations and are scarcely safe for habitation. It would be nearly impossible to effect flood control by this method. In fact, such a method is not flood control, but flood escape.

After long and repeated discussions, the Indiana Flood Control and Water Resources commission has come to the conclusion that its remedial measures for floods must fall into four categories. In the first place, we believe that it is important for us to encourage the retardation of runoff on the land. This means the widespread use of soil conservation and reforestation practices. It may mean improvement in land use, proper rotations and good cover rather than terracing, sodded waterways and strip cropping. Certainly it will require all of these practices where they are applicable, and reforestation to an extent not yet considered by any of our governments—county, state or federal. At the present moment it seems that anything like comprehensive treatment of the lands in the midwest by such practices is a little remote, although we must admit that the Soil Conservation Service and the Forest Service have been making considerable strides toward the goal. In Indiana we feel that the programs of the soil conservation districts, forest purchase and Triple "A" subsidies offer the best opportunity to get this job done. In its present move for economy, Congress may eliminate parts of these programs, in which case the job must be done with what is left. It may not offer too much hope for the immediate future, but the Indiana Flood Control and Water Resources Commission feels that it must encourage these programs in the hope of effecting as much retardation of runoff as is possible.

The second method which we feel is due to play a large part in the control of floods, upstream and down, is the detention of runoff in some of the stream valleys by means of dams and reservoirs. The U. S. Corps of Engineers has had a comprehensive plan in mind for the midwest for a number of years which was to include many reservoirs, some of them quite large. Two of these reservoirs were recommended by the District Office at Louisville in its Wabash Basin report. In the federal plan they are fine and, personally, I have no doubt that they are needed downstream. However, there was considerable local opposition to these two projects and they were finally deleted from the plans by the National Board of Review and the Chief of Engineers. Our Commission feels that, for Indiana's sake, we need smaller reservoirs farther upstream. We realize that the cost of such smaller reservoirs per acre-foot of storage

is likely to be much greater, but we feel also that being farther upstream they will furnish more flood benefits to stream valleys throughout Indiana. This does not gainsay the fact that some day the system of large reservoirs, which has been planned by the Army Engineers, will need to be constructed. The third method for flood control which our Commission believes is necessary is local protective works. This means levees and flood walls. We do have a number of levees in Indiana at the present time. We have fully a score of such systems already in existence, many of them improved by the Army Engineers in recent years. There are nearly a score of levee systems which are on the approved list of the Chief's office at the present time. Indiana has no large levees such as are found farther down the Mississippi system, but it does have a number of smaller systems which are very important to the agriculture of the state. Furthermore, we have about a dozen cities along the major rivers of the state which are so situated as to require protection by levees and flood walls. We have complete protection for a few of those cities at the present time. The Corps of Engineers have plans for the protection of several more. There are some for which the planning yet must be done.

The fourth and final method of flood control which we find necessary is channel improvement. We feel that this method can be overdone very quickly and that it should be used in moderation. However, there are times and places in flood planning when it is necessary to open up bottle-necks and to cut off oxbows along with the use of other methods for flood protection. Our Commission hears daily from small cities and towns and from the farmers about flood control needs which often turn out to be only needs for dredging and straightening smaller streams in order to get the water away more quickly from points where a great deal of damage may be done. We have no way on the state level to deal with these problems. Such projects must still be done by the local people under drainage proceedings.

It is the very firm conviction of the Commission and its engineers that no one of these methods for flood control can be expected to do the job alone. There is scarcely any local flood problem where the combination of two or more of these methods is not required. Certainly we need to practice retardation on the land throughout the entire state as a general thing. To this in many places, we can add enough detention in the stream valleys to make it possible to lessen the height and cross-section of levees needed in local protective works. In any of these projects a little channel improvement is very likely to be required.

Insofar as reservoirs are concerned we hope that, wherever possible flood control reservoirs may be made multiple-purpose reservoirs. There are some cases where we are recommending reservoirs without conservation pools, where we feel that the flood control needs require all of the storage or where the type of site is not conducive to recreational development or where the reservoir may be situated close to an existing state park area, thus making recreational development at the point in question undesirable. We are trying in all cases to recommend upstream reservoirs where there are definite water-supply needs in order that water-supply features may be included with the flood control works. We have

in mind also the need for some low-flow control in certain streams where pollution is a menace. We have not considered, and probably will not consider, power development in any of the reservoirs which the state has recommended.

We feel that we have a very satisfactory understanding and relationship with the U. S. Corps of Engineers. Our work brings us into closer contact with the Louisville district and its personnel than any other district. They have been encouraging and helpful in our planning. It is understood between us that we are to make preliminary investigations throughout the state and recommend to the Army Engineers the procedure which the State of Indiana would like to follow. In keeping with this understanding, we have a field crew at work on preliminary surveys of reservoir sites. We have completed surveys on four reservoir sites in the tributaries of the Upper East Fork of White River. We are completing a report now on three reservoirs in the Muscatatuck tributaries of White River. Our field crews have finished surveys on fifteen tributaries of the Upper Wabash where reservoir sites are to be considered. We have gone over the matter of criteria with the Army Engineers and have come to understand the limitations put upon them by Congress. We do not ask them to consider any project which we do not find economically justifiable in our preliminary study. We are providing them with all of the field data on surveys as the reports are completed, in order that they may have information on all of these sites considered even though it be negative in some cases.

For several years the Corps of Engineers has been developing projects for flood control in Indiana and some of these are now completed and some under construction. The Commission works closely with the Corps of Engineers on these projects. They are local protective works at Indianapolis, Muncie, Vincennes, Cannelton, Evansville, Tell City, Jeffersonville, New Albany, Aurora and Lawrenceburg and a storage reservoir at Cagles Mill on Mill Creek in Putnam County.

We have very great hopes that some of our local areas with flood control water supply, pollution, and recreational problems may take advantage of the new law recently passed by the legislature by establishing themselves in conservancy districts. This would allow them to do a little local planning. Our Flood Commission is trying to see the problems from a local viewpoint, but we have some of the same difficulties in seeing the local problem that the federal agencies have in seeing the state problems. In addition to the advantages of local planning, we believe that much of the expense of construction of works, for water supply and recreation particularly, should be borne by the people who benefit most directly from it. Two or three areas already are taking steps to form conservancy districts.

Conclusions

The Indiana Flood Control and Water Resources Commission realizes that it probably never will control floods in Indiana completely. There are those in all walks of life who are perfectionists who approach problems with the hope of complete solution. But we can not work with the

solution of these problems for the public without realizing that a great many limitations are put upon us which make it nearly impossible to reach a one hundred percent solution. If we had all of the money that we needed to spend and all the personnel we needed to do the job and on top of this the agreement of everybody to allow duly constituted authorities to make the decisions, we might expect to gain complete control of floods.

But I am not sure that this would be a desirable thing if we could do it. Certainly we must stay within the bounds of economic justification. We can do a great deal of good toward the solution of flood control problems by discouraging further building in the flood plains. We must try always to disseminate correct information in order that the public may be as correctly informed as possible. We are inclined to believe that the states must do the job for themselves insofar as that is possible. But we know that it will leave much to be done by agencies of the federal government.

The federal agencies must first correlate their own efforts and then assist in the correlation of state efforts. We believe firmly that local cooperation on flood projects should be emphasized to a greater degree in the future.