SUMMARY REPORT OF THE SYMPOSIUM

1. **General**

The subject was of vital importance for many IPFC member countries, as it was for other developing regions. The contributed papers were of high technical quality. It was appreciated that some came from FAO field experts.

2. **Engine selection and maintenance**

a. *Outboards and inboards.* The choice was not between inboards and outboards but where each type of engine could best be employed. Outboards have the advantage of low investment requirements but it is equally important, when introducing outboards as when introducing inboards, that the right type is selected and that adequate training and maintenance facilities are ensured. Neglect of these was the reason for many failures, at first, but when the requirements were met such mechanization became successful, eventually. Outboards form a stepping stone to larger boats with inboard engines and this was cofirmed by recent developments in Malaya.

b. *Fuel consideration.* As concluded by the Council, it was considered illogical that fishermen should pay the road taxes which often are levied on certain types of fuel. This had a tendency to force fishermen to a more costly investment than necessary.

c. *Engine classification criteria.* Engines were sold with many different, power ratings. The purchaser must establish an equal rating when comparing engines.

For propeller calculations, it was also necessary to determine the engine power permitting continuous operation under foul weather conditions and with the engine in need of general overhaul.

d. *Engine design consideration.* When seicc-ting an engine attention had to be drawn as to whether it had power-take off or other practical facilities to drive a fishing winch.

e. *Maintenance.* For the success of any mechanization scheme maintenance was of vital importance and it was suggested that fishermen should undergo special training in operation and maintenance of the engine prior to receiving any financial aid.

3. **Engine installation and propeller selection**

The paper on engine beds did not cover the whole subject of installation. There were, however, text books, available. It was understood that the South Pacific Commission will publish a book on boat building containing a section on engine installation. It was important to have large and efficient sediment bowls, strainers and filters in the fuel line because when a boat rolls in heavy weather, sediments might become mixed in the fuel and carried into the engine. Torsional vibrations appear sometimes in fishing boats. It was recommended to ensure that torsional vibrations were avoided for the operational RPM.

Appendages such as skegs, and A-frames as well as square propeller posts did increase the total resistance considerably. Control able pitch propellers were of great importance also while handling various types of fishing gear and because they permitted better utilization of engines to drive the fishing winches.

For the calculation of the diameter and pitch of propellers it had been found in Hong Kong that by using 90% SHP and 100% RPM, propellers selected from the Troost diagrams gave useful service.

4. **Mechanization of existing boats**

Mechanization in Hong Kong had been so successful that during the last year 1,538 diesel

engines had been installed. The boats were successively modified in the general design as well as in details like rudders. There had been difficulties in accomodating propellers with efficient diameters but this was overcome by allowing the propellers shafts to protrude from the hull, being kept in possition by A-frames.

5. **Development of new mechanized boats**

New and larger fishing boats will generally have to work with other and more efficient fishing methods than the original boats, to determine which are necessary to carry out experimental fishing. Such could perhaps best be carried out from boats of efficient design used elsewhere so as to avoid loss of time in adjusting locally built boats to the needs of foreign-aid master fishermen.

New mechanized boats should be developed to suit local conditions so that they could be built by local boat yards.

6. **Government services**

It was important that governments define a policy when deciding on mechanization schemes. Financial aid was necessary. The need for government extension services in training operation and maintenance was emphasized.