# Manual Process of Extracting Facts and Relationships

## 1/ Sentence separation & Subject Identification:

### a/ Paper 1: Diversity of fishing gears and crafts used for harvesting the Asian seabass, Lates calcarifer along the Bay of Bengal, Bangladesh coast

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| **Sentence Separation** | **Subject Identification** |
| **S1:** These fishing boats are built traditionally by the rural carpenters with wooden planks. | These fishing boats [Sub: Boats] |
| **S2:** Till the mid ‘60s, fishing operations in the estuaries and offshore waters were carried out by traditional craft. | Fishing operations [Sub: Fishing operations] |
| **S3:** The first initiatives of motorized fishing boats started in 1966-67 with outboard engines. | Motorized fishing boats [Sub: Boats] |
| **S4:** Subsequently, these were replaced by inboard marine diesel engines. | These [Sub: Outboard engines] |
| **S5:** The marine fishing fleet consists of about 34,810 traditional boats, 32,859 motorized boats and 247 trawlers. | Marine fishing fleet [Sub: Fishing fleet] |
| **S6:** The total number of marine fishing gears were operated in Bangladesh was 1,88,707. | The number of marine fishing gears [Sub: Number of fishing gears] |
| **S7:** The number of marine fishermen was about 5,16,000 out of a total of 1.16 million fishermen in the country (DoF 2016). | The number of marine fishermen [Sub: Number of fishermen] |
| **S8:** In Bangladesh the major fishing of Asian seabass was based on mechanized crafts and gear. | Major fishing [Sub: Fishing operations] |
| **S9:** There was almost nonexistence of the primitive fishing crafts like Dug-out canoe, Bamboo raft etc. but the wooden boats used for harvesting seabass in coastal and offshore areas of Bangladesh. | There [Sub: Fishing crafts] |
| **S10:** These plank built boats are covered with wooden or bamboo frames. | These plank built boats [Sub: Artisanal boats] |
| **S11:** The smaller sized boats are used in coastal rivers, canal and estuaries. | The smaller sized boats [Sub: Artisanal boats] |
| **S12:** Kosha nauka is a low cost, most traditional country boat with flat bottom and decking half split bamboo. | Kosha nauka [Sub: Kosha nauka] |
| **S13:** Dingi nauka is a small rowing boat. | Dingi nauka [Sub: Dingi nauka] |
| **S14:** It is a shallow boat with a pointed bow and the hull is strengthened by ribs and cross beams. | It [Sub: Dingi nauka] |
| **S15:** Medium sized boats are mainly used in commercial fishing. | Medium sized boats [Sub: Motorized boats] |
| **S16:** These boats are also used for harvested fish transportation. | These boats [Sub: Motorized boats] |
| **S17:** Motorized dingi boats are of the same design and structure to non-mechanized Dingi but large in size, powered by marine engine. | Motorized dingi boats [Sub: Dingi boats] |
| **S18:** Sampan fish boats are crescent shaped boats indigenous to Cox’s Bazar and Chattagram region | Sampan fish boats [Sub: Sampan] |
| **S19:** The Koral jal which is a modified version of the large meshed gill net, the local fishers developed for harvesting seabass in Cox’s Bazar region. | Koral jal [Sub: Gill net] |
| **S20:** “J’’ shaped steel hook is mostly used for hook and line fishing. | “J” shaped steel hook [Sub: Hook] |
| **S21:** They reported that gillnets, hooks and lines, cast nets and traps were used to catch the mature seabass. | They [Sub: Researchers] |
| **S22:** The form and size of the gear depends on the use of gears and the environmental condition of the water body. | The form and size of the gear [Sub: Fishing gears] |
| **S23:** Among the documented gears and crafts, one new gear (single hook and line) and one fishing boat (Sampan) were found to be involved in Seabass harvesting at BoB coast, which earlier has not been reported from Bangladesh. | One new gear (single hook) and one fishing boat (Sampan) [Sub: Hook and Sampan] |
| **S24:** Front head of Sampan is high and curved, but backside strait. | Front head of Sampan [Sub: Front of Sampan] |
| **S25:** With the introduction of the marine engine the primary utility of the shape has forgone. | Primary utility of the shape (Front head of Sampan) |
| **S26:** The bow and stern Balam fishing boat are slightly raised. | Balam fishing boat [Sub: Balam] |
| **S27:** The sides are built by fitting planks to the dug-out portion of the hull. | Sides [Sub: Sides of Balam] |
| **S28:** The seagoing mechanized fishing vessels (trawlers) are made from the best quality planks and are covered with wooden frames having a cabin, a kitchen and latrine facilities. | Seagoing mechanized fishing vessels [Sub: Trawlers] |
| **S29:** They have insulated cold storage facilities for preserving the harvested fishes up to 15 days in the sea. | They [Sub: Trawlers] |
| **S30:** Behundi jal is a conical shaped net and has two extensions | Behundi jal [Sub: Behundi jal] |
| **S31:** Mouth of the net is spread and fixed on tide by bamboo, wood or iron. | Mouth of the net [Sub: The net’s mouth] |
| **S32:** Fish is trapped in the centre pouch of the net. | Fish [Sub: Fish] |

## 2/ Structuring facts & Relationship Identification and Representation:

### a/ Paper 1: Diversity of fishing gears and crafts used for harvesting the Asian seabass, Lates calcarifer along the Bay of Bengal, Bangladesh coast

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| **Fact Identification** | **Relationship Identification** | **Relationship Representation** |
| These fishing boats are built traditionally by the rural carpenters with wooden planks. | Relationship: Boats are built traditionally by rural carpenter with wooden planks | Boats (vehicle) [:are\_built\_by] rural carpenter (identity) [:with] wooden planks (objects) |
| Till the mid ‘60s, fishing operations in the estuaries and offshore waters were carried out by traditional craft. | Relationship: Until the middle of the 1960s, fishing operations in small bodies of water used traditional craft. | Fishing operations (activity) [:in] small bodies of water (location) [:used] traditional craft (objects) |
| The first initiatives of motorized fishing boats started in 1966-67 with outboard engines. | Relationship: Fishing boats that are motorized first started in 1966-67 with outboard engines | Motorized boats (vehicle) [:first\_started\_in] 1966-67 (time) [:with] outboard engines (engines) |
| Subsequently, these were replaced by inboard marine diesel engines. | Relationship: These (outboard engines) were replaced by inboard marine engines that used diesel. | Outboard engines (engines) [:were\_replaced\_by] inboard marine engines (engines) [:that\_used] diesel (fuel) |
| The marine fishing fleet consists of about 34,810 traditional boats, 32,859 motorized boats and 247 trawlers. | Relationship: The marine fishing fleet ≡ 34,810 traditional boats, 32,859 boats that are motorized and 247 trawlers. | The marine fishing fleet (identity) ≡ [:34,810] boats (vehicle), [:32,859] motorized boats (vehicle) and [:247] trawlers (vehicle). |
| The total number of marine fishing gears were operated in Bangladesh was 1,88,707. | Relationship: The number of fishing gear were operated in Bangladesh ≡ 1,88,707. | The number of fishing gear (number) [:were\_operated\_in] Bangladesh (location) ≡ 1,88,707 (number). |
| The number of marine fishermen was about 5,16,000 out of a total of 1.16 million fishermen in the country (DoF 2016). | Relationship: The number of fishermen ≡ about 5,16,000 of 1.16 million fisherment that is in the country (Bangladesh) | The number of fishermen (number) ≡ [:about] 5,16,000 (number) [:of] 1.16 million (number) [:in] Bangladesh (location) |
| In Bangladesh the major fishing of Asian seabass was based on mechanized crafts and gear. | Relationship: Major fishing of Asian seabass was based on mechanized crafts and gear. | Major fishing (activity) [:of] Asian seabass (species) [:was\_based\_on] mechanized crafts (objects) and gear (objects) |
| There was almost nonexistence of the primitive fishing crafts like Dug-out canoe, Bamboo raft etc. but the wooden boats used for harvesting seabass in coastal and offshore areas of Bangladesh. | Relationship: The fishing crafts that are primitive was almost nonexistence , but the wooden boats used for harvesting seabass in small bodies of water of Bangladesh. | Fishing crafts (objects) [:that\_are\_primitive] [:was\_almost] nonexistence (attribute) [:but] the wooden boats (vehicle) [:used\_for] harvesting seabass (activity) [:in] small bodies of water (location) [:of] Bangladesh (location) |
| These plank built boats are covered with wooden or bamboo frames. | Relationship: These boats that are built with plank are covered with wooden or bamboo frames | Boats (vehicle) [:that\_are\_built\_with] plank (objects) [are\_covered\_with] wooden or bamboo frames (objects) |
| The smaller sized boats are used in coastal rivers, canal and estuaries. | Relationship: Boats that are smaller are used in small bodies of water. | Boats (vehicle) [:that\_are] smaller (attribute) [:are\_user\_in] small bodies of water (location). |
| Kosha nauka is a low cost, most traditional country boat with flat bottom and decking half split bamboo | Relationship: Kosha nauka ≡ most traditional country boat that is low cost with flat bottom and decking half split bamboo | Kosha nauka (identity) ≡ [:most] traditional boat [:that\_is] low cost (attribute) [:with] flat bottom (attribute) and decking half split bamboo (attribute) |
| Dingi nauka is a small rowing boat. | Relationship: Dingi nauka ≡ a rowing boat that is small | Dingi nauka (identity) ≡ rowing boat (vehicle) [:that\_is] small (attribute) |
| It is a shallow boat with a pointed bow and the hull is strengthened by ribs and cross beams | Relationship: It (Dingi nauka) ≡ a shallow boat with pointed bow and hull that is strengthened by ribs and cross beams. | Dingi nauka (identity) ≡ a shallow boat (vehicle) [:with] pointed bow (attribute) and the hull (attribute) [:is\_strengthened\_by] ribs (objects) and cross beams (objects) |
| Medium sized boats are mainly used in commercial fishing. | Relationship: Boats that are medium size are mainly used in commercial fishing. | Boats (vehicle) [:that\_are] medium size (attribute) [:are\_mainly\_used\_in] commercial fishing (activity) |
| These boats are also used for harvested fish transportation. | Relationship: These boats (motorized boats) are also used for transporting harvested fish | Motorized boats (vehicle) [:are\_also\_used\_for] transporting harvested fish (activity) |
| Motorized dingi boats are of the same design and structure to non-mechanized Dingi but large in size, powered by marine engine. | Relationship: Motorized dingi boats have the same design and structure to non-mechanized Dingi but large in size and powered by marine engine. | Motorized dingi boats (vehicle) [:same\_design\_and\_structure\_to] non-mechanized Dingi (vehicle) [:but] large size (attribute) and [:powered\_by] marine engine (objects) |
| Sampan fish boats are crescent shaped boats indigenous to Cox’s Bazar and Chattagram region | Relationship: Sampan boats ≡ boats that are crescent and indigenous to Cox’s Bazar and Chattagram region. | Sampan boats (vehicle) ≡ boats [:that\_are\_crescent] and [:indigenous\_to] Cox’s Bazar (location) and Chattagram (location). |
| The Koral jal which is a modified version of the large meshed gill net, the local fishers developed for harvesting seabass in Cox’s Bazar region. | Relationship: Koral jal ≡ a modified version of the large meshed gill net, that the local fishers developed for harvesting seabass in Cox’s Bazar region. | Koral jal (identity) ≡ [:modified] gill net (objects) [:that\_is] large (attribute) and meshed (attribute) [:that] the local fishers (identity) [:developed\_for] harvesting seabass (activity) [:in] Cox’s Bazar region (location) |
| “J’’ shaped steel hook is mostly used for hook and line fishing. | Relationship: Steel hook that is “J” shaped is mostly used for hook and line fishing | Steel hook (objects) [:that\_is] “J” shaped (attribute) [:is\_mostly\_used\_for] hook (objects) and line fishing (objects) |
| They reported that gillnets, hooks and lines, cast nets and traps were used to catch the mature seabass. | Relationship: They (researchers) reported that gillnets, hooks and lines, cast nets and traps were used to catch mature seabass | Reseachers (identity) [:reported\_that] gillnets (objects), hooks (objects) and lines (objects), cast nets (objects) and traps (objects) [:were\_used\_to\_catch] mature seabass (species) |
| The form and size of the gear depends on the use of gears and the environmental condition of the water body. | Relationship: Form and size of the gear depends on the gears’ use and the condition of the environment water | Form and size (attribute) [:of] gears (objects) [:depends\_on] use [:of] gears (objects) and the condition (attribute) [:of\_the\_environment] water (identity) |
| Among the documented gears and crafts, one new gear (single hook and line) and one fishing boat (Sampan) were found to be involved in Seabass harvesting at BoB coast, which earlier has not been reported from Bangladesh. | Relationship: Single hook and line and Sampan boat were involved in Seabass harvesting at BoB coast | Single hook and line (identity) and Sampan boat (identity) [:were\_involved\_in] Seabass harvesting (activity) at BoB coast (location) |