# Report on Aquazonation in West Godavari District

The West Godavari district with its headquarters at 'Eluru" is one of the nine coastal districts of Andhra Pradesh State. It is located between North Latitudes $16^0$ 51' and $17^0$ 30' and East Longitudes $80_0$ 50' and $81_0$55' covering parts of Survey of India toposheet Nos. 65 C, D, G & H. The total geographical area of the district is 7,795 sq. km constituting 2.84% of the total area of the state. The WG District is a hub of all **aquaculture** activities in **Andhra Pradesh**. The region contributes as much as 60% of the fish production from the State. The major aqua products in the region are fish and shrimp. The total fish production in the district was 10,51,754 tons with GVA 10088 crores for the year 2017-18. However there is a paradigm shift from capture to culture fisheries with the onset of several man made technologies.

The enormous population pressure, economic potential and the entrepreneurial attitude of majority of farmers in the Godavari Delta region have sufficiently transformed the land use; land cover pattern of the area, especially during the recent years. The rapid and over-concentrated development of aquaculture has resulted in deterioration of soil and water quality. Water flowing out of an aquaculture pond is seen carrying excessive nutrients, bacteria, other pathogens and polluting chemicals.

The pumping of sea or salt water into shrimp farms and its long contact with the fertile soils is evident . Some of the agricultural lands situated nearer to the aquaculture tanks facing the water logging problem. So that crop yield becomes very low. The higher values of heavy metals indicate that metals are accumulated at the bottom of the aqua pond as sediment and have a negative impact on the pond productivity as well as neighbouring environment. Finally, inland fish/shrimp farming represents a situation where a significant short-term economic benefits may be obtained but at the risk of creating long-term accumulative environmental impacts.

Though aquaculture is seen as an increasingly important component in the quest to achieve food security in light of such drivers as a decline in capture fisheries, an expanding global population and climatic change. However, it is widely recognized poor regulation acts as a major constraint on the development of the sector.

In the light of above issues Government of A.P has a taken a pro-active role in regulating the land use i.e. existing aquaculture area , potential area for aquaculture i.e. conversion of low lying/low productive/unfertile to aquaculture most judiciously by issuing Go ms no 16 and declaring the identified/established aquaculture areas as "Aqua zones" . The objective being aquaculture with other food production activities, interacts with the environment, as it is dependent on land, water and aquatic species and is liable for environmental change. Production from these aqua growing areas must lead to a product safe for human consumption by domestic and foreign consumers. Therefore its regulation, rational use and management is the need of the hour. A survey as per Go Ms no 16 was instructed to be taken up duly abiding the guidelines taking village as the basic unit. Further as water source is the prime factor to decide the aqua production and productivity the irrigation sources available in each village is to be critically studied as it decides the type of culture and species to be raised. In West Godavari District the survey commenced as per G. O. Ms. No. 16 AH,DD & Fisheries, (FISH) Dept., dt.20.4.2018.

**The objectives of Zonation of Aquaculture :-**

i. Regulation and prohibition of the unauthorized conversions of Fertile Agriculture lands into Aquaculture.
ii. Promotion of the Sustainable aquaculture.
iii. Taking up of Aquaculture in the suitable areas like low lying, prone to water logging and agriculturally unproductive and saline soils.
iv. Adopting eco-friendly farming techniques such as proper drainage system, water quality monitoring, disease surveillance, provision of common ETPs and reduce adverse social and environmental conflicts
v. Infrastructure development in the aqua zones like providing transportation facility, power supply, approach roads and drainage facilities.
vi. Ensuring forward and backward linkages for aqua sector through PPP mode such as creation of the facilities like seed production centers / hatcheries, ice plants, processing plants, aqua labs and marketing units for value added products etc.
vii. Streamlining the online licensing system, Pre licensing system in Zone area and other services, thereby up scaling these zones as Farmer Producer Organizations a viable Micro Economic units.
viii. Implementing bio security measures and disaster risk management.
ix. Regulation of the usage of water, with polyculture and crop rotation for sustainable farming.
x. Promoting Re-circulatory Aquaculture Systems (RAS) to maintain quality water and avoid polluted water sources.

**Zonation Process :-**

i. Village is considered as unit for notification of aquaculture area.
ii. In each village existing aquaculture area identified Survey Nos. and Geo-tagging.
iii. In the existing aquaculture area for the demarcation of areas into brackish water under the jurisdiction of CAA and FW area under the jurisdiction of State Govt.
iv. Potential aquaculture areas in the suitable lands have identified Survey No. wise and Geo-tagging taking into consideration of the following.

    a. Area of the Lands prone to inundation & low lying beside to creeks, canals, drains and suitable forAquaculture.
    b. Area of the Lands surrounded by Aqua ponds and water logging areas and lands affected with existing fish pondsand.
    c. AlkalineLands, not suitable for Agriculture, Horticulture, Sericulture etc and un productive for Agri.,crops.

In West Godavari as on date aquaculture is being carried in **67518.3 hectares** covering **29** mandals and **13355.261** hectares of land is identified as potential area for conversion as shown below:

| Sl. No | Name of the Mandal | Total Ayacut | Total Agriculture in the mandal | Aqua Culture Area in the Mandal (H) | Potential Area for Aqua Culture development(H) | Percentage of the Aqua Culture in the mandal | Drains & Canals in the mandal | Passing through the villages | Water Characteristics | | | | CN Ratio | Soil characteristics | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | PH | Hardness (ppm) | Salinity (ppt) | Alkalinity (ppm) | | Soil PH | Soil texture |
| 1 | Ganapavaram | 8374.41 | 5559.30 | 2686.72 | 1360.47 | 32.08 | Murugukodu drain | Jellikakinada,Skondepudi, Saripalli | 7.5 | 950 | 3 | 320 | 6:0 | Moderately alkaline | Browny sandy clay |
| | | | | | | | Rasakodu drain | D kumuduvalli | 7.6 | 800 | 3 | 220 | | | |
| | | | | | | | venkayya veyyeru | kothapalli,ardavaram,varadarajapuram | 7.8 | 820 | 3 | 230 | | | |
| | | | | | | | Jellikakinada | ardhavaram | 7.8 | 620 | 3 | 240 | | | |
| 2 | Attili | 6990.69 | 6012.37 | 1051.2 | 171.34 | 15.03 | Rasakodu drain | Paluru,Kommara | 7.5 | 820 | 3 | 240 | 6:0 | Moderately alkaline | Black clay |
| | | | | | | | Addakodu drain | Manchili | 8.1 | 550 | 3 | 180 | | | |
| | | | | | | | Yerlakodu drain | Kanchumarru,Aravalli | 8.1 | 580 | 3 | 300 | | | |
| 3 | Penumantra | 5443.484 | 4332.25 | 1179.12 | 134.12 | 21.66 | Baggeswaram drain | Oduru,Alamuru | 8.5 | 400 | 3 | 320 | 8:0 | Moderately alkaline | Black sandy clay |
| | | | | | | | Gontheru drain | Koyyetipadu,Nelamuru,Bhatlamaguturu | 8.1 | 380 | 3 | 290 | | | |
| 4 | Akiveedu | 7579.25 | 2939.99 | 4594.00 | 628.64 | 60.61 | Upputeru drain | Akiveedu to cherukumilli | 7.9 | 800 | 5 | 190 | 11:9 | Moderate alkaline | Black clay |
| 5 | Undi | 12384.75 | 5286.69 | 5100.00 | 972.93 | 41.17 | Bondada, Rudraya, Kakinada drains | Passing through all the villages | 7.5 | 400 | 3 | 300 | 11:9 | Moderately acidic | Black clay |
| | | | | | | | Undi,Aredu Canals | Passing through all the villages | 7.2 | 520 | 3 | 250 | | | |
| 6 | Kalla | 10766.48 | 3131.01 | 6755.27 | 777.08 | 62.74 | Upputeru drain | Elurupadu to Malavanitippa | 7.1 | 520 | 5 | 250 | 11:9 | Moderately acidic | Brown sandy clay |
| | | | | | | | Old Yanamadurru | LVN Puram to Malavanitippa | 7.9 | 800 | 3 | 260 | | | |
| 7 | Bhimavaram | 47712.28 | 12797.72 | 9009.55 | 951.69 | 18.88 | Yanamadurru drain | Bhimavaram to losari | 7.9 | 600 | 5 | 340 | 6:0 | Moderately acidic | Black clay |
| | | | | | | | LVN Puram drain | LVN Puram to Dirusumarru | 7.8 | 500 | 4 | 320 | | | |
| | | | | | | | Dirsumarru drain | Dirsumarru to yanamadurru | 8.4 | 620 | 4 | 360 | | | |
| 8 | Palakoderu | 9714.357 | 8707.18 | 994.32 | 485 | 10.23 | Yanamadurru drain | Gollalakoderu, Garagaparru Villages | 7.8 | 900 | 3 | 300 | 11:90 | Moderately Acidic | Brown sandy loam |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | Veeravasaram | 7039.264 | 903.388 | 1138.7 | 826.84 | 16.17 | Murugu drain | Matsyapuri,Andaluru,Nowduru, Madugu polavaram,Nelapogula villages | 7.7 | 420 | 2 | 330 | 15:87 | Moderately alkaline | Brown sandy clay |
| | | | | | | | Gontheru drain | Rayakuduru | 7.1 | 420 | 2 | 350 | | | |
| 10 | Palakollu | 7912.344 | 4929.204 | 1137.93 | 550.806 | 15.52 | Palakolluva | Palakollu to vardhinam | 7.8 | 350 | 2 | 320 | 11:90 | Moderately alkaline | Black clay |
| | | | | | | | Baggeswaram drain | Digamarru,Kapavaram, Poolapalli,Ullamparru,Velivela | 7.2 | 520 | 4 | 250 | | | |
| | | | | | | | Gontheru drain | Palamuru to Tillapudi | 7.5 | 680 | 5 | 200 | | | |
| | | | | | | | Mogalthuru drain | Vadlavanipalem to Agaltipalem | 7.5 | 480 | 4 | 320 | | | |
| | | | | | | | Kaza major drain | Digamarru to vardhinam | 7.3 | 920 | 3 | 200 | | | |
| 11 | Poduru | 7218.526 | 6402.936 | 775.43 | 177.608 | 10.74 | Baggeswaram drain | Jinnuru,Kommuchikkala,Vedangi | 7.9 | 920 | 3 | 260 | 11:90 | Moderately acidic | Black clay |
| | | | | | | | Nakkala drain | Ravipadu,Gummuluru | 8 | 350 | 2 | 270 | | | |
| 12 | Achanta | 6346.06 | 6041 | 305.03 | 335.97 | 4.80 | Taderu | A vemavaram,Kodamanchili | 8 | 1900 | 7 | 270 | 3:5 | Moderately alkaline | Black clay |
| | | | | | | | Murugu | Karugorumilli,Valluru,Kandaravalli | 7.1 | 1200 | 6 | 180 | | | |
| 13 | Elamanchili | 7064.97 | 6136.95 | 928.02 | 800 | 13.13 | Nakkala drain | Katlupalem to Vengadapalem | 7.1 | 1500 | 6 | 120 | 1.7:65 | Moderately alkaline | Black sandy clay |
| | | | | | | | Kaza drain | Medapadu to chinchinada | 7.6 | 1400 | 6 | 180 | | | |
| | | | | | | | Taderu drain | Penumanchili,Valluru,Doddipatla,Burugupalli | 7.4 | 1150 | 6 | 160 | | | |
| 14 | Narasapuram | 9228 | 5276.43 | 2839.38 | 638.97 | 30.76 | Gontheru drain | Rusthambada | 7.6 | 3000 | 9 | 200 | 15:87 | Moderately alkaline | Black clay |
| | | | | | | | Narasapuram main canal | Narasapuram town | 7.6 | 2500 | 9 | 220 | | | |
| | | | | | | | Ramannapalem canal | Thurputhalla,Seetharamapuram, K bethapudi,saipalli | 8.5 | 2900 | 9 | 340 | | | |
| 15 | Mogalthuru | 5684 | 1369.49 | 3749.08 | 845.70 | 65.95 | Gontheru drain | Mogalthuru,serayapalem,mutyalapalli | 7.6 | 2600 | 8 | 300 | 7.9 | Moderately Alkaline | Brown sandy loam |
| | | | | | | | Upputeru drain | Mutyalapalli,Kalipatnam,Perupalem | 7.9 | 2800 | 8 | 310 | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | Kukkuleru | Mutyalapalli,KP Palem | 7.9 | 1450 | 7 | 190 | | | |
| | | | | | | | Yanamadurru drain | Mutyalapalli,Kalipatnamn | 7.8 | 1500 | 7 | 320 | | | |
| 16 | Eluru | 20614.924 | 2652.58 | 5242.67 | 121.66 | 25.43 | Eluru drain | Eluru,Madepalli to kolleru lake | 7.5 | 220 | 1 | 180 | 0.52 | Moderately Alkaline | Brown sandy clay |
| | | | | | | | Ponangi puntha | Eluru to kallakuru village | 7.5 | 250 | 2 | 220 | | | |
| | | | | | | | Krrishna kaluva | Madepalli to Jalipudi | 7.6 | 210 | 1 | 350 | | | |
| | | | | | | | Godavari canal | Pydichinthapadu to Chataparru | 7.5 | 200 | 1 | 300 | | | |
| 17 | Pedapadu | 7664.42 | 3555.704 | 4085.712 | 1000 | 53.61 | Budameru drain | Passes through the mandal | 7.2 | 210 | 0.5 | 200 | 11:90 | Moderately Alkaline | Black clay |
| | | | | | | | Krishna canal | Passes through the mandal | 7.5 | 210 | 0.5 | 250 | | | |
| | | | | | | | End of the kolleru | Passes through the mandal | 7.6 | 200 | 1 | 250 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | Bhimadole | 13935.75 | 6286 | 3964.25 | 240 | 1.32 | Murugu kodu | Bhimadole to Pedalingampadu | 7.8 | 200 | 0.5 | 260 | 7:6 | Moderately Alkaline | Brown sandy clay |
| | | | | | | | Undru kodu | Gundugolanu to pulla | 7.7 | 220 | 1 | 200 | | | |
| | | | | | | | local drain | Pulla | 7.8 | 220 | 0.5 | 100 | | | |
| 19 | Iragavaram | 3579.20 | 3221.60 | 177.352 | 0 | 13.39 | Gontheru drain | Kakileru,Kontheru, Kathavapadu | 7.5 | 280 | 0.5 | 200 | 11:90 | Moderately Alkaline | Black sandy clay |
| 20 | Tanuku | 1141.05 | 1101 | 15.14 | 0 | 1.32 | Gosthani | Kavalipuram,Velpuru,Tanuku | 7.5 | 280 | 0.5 | 150 | 11:90 | Slightly acidic | Black clay |
| 21 | Peravali | 1696.84 | 1447.20 | 131.466 | 75 | 15.55 | Kanuru drain | Kanuru,Teeparru,K Agraharam | 7.5 | 200 | 1 | 230 | 11:90 | Moderately Alkaline | Black clay |
| 22 | Chagallu | 4073.88 | 4015.2 | 58.98 | 20.71 | 1.44 | Pemula kaluva | Chagallu village | 7.3 | 220 | 0.5 | 160 | 1:25 | Moderately alkaline | Black clay |
| | | | | | | | Daravaram madugu | Bhramanagudem,Daravaram, Markondupadu | 7.8 | 220 | 0.5 | 180 | | | |
| 23 | Penugonda | 3439.47 | 3350.41 | 46.712 | 0 | 2.89 | Vadali drain | Vadali | 7.5 | 230 | 1 | 100 | 6:0 | Moderately alkaline | Black sandy clay |
| | | | | | | | Kotalaparru drain | Kotalaparru | 7.7 | 280 | 0.5 | 190 | | | |
| | | | | | | | Penugonda drain | Penugonda | 7.4 | 300 | 1 | 220 | | | |
| 24 | Nidadavolu | 5541.92 | 5246.32 | 286.00 | 525 | 13.81 | Nidadavolu drain | Nidadavolu,Singavaram | 7.5 | 210 | 1 | 210 | 6:0 | Moderately alkaline | Black sandy clay |
| 25 | Nidamarru | 7480.81 | 3250.47 | 5635.55 | 1259.72 | 75.33 | Chinanindrakolanu drain | Thokalapudi to Amudalapalli village | 7.5 | 210 | 1 | 220 | 11:9 | Moderately alkaline | Black clay |
| | | | | | | | Pandi kodu drain | Nidamarru to Adavikolanu | 7.4 | 210 | 2 | 250 | | | |
| | | | | | | | Chinakapavaram | Krovvidi to Chanumilli | 7.6 | 220 | 2 | 290 | | | |
| 26 | Undrajavaram | 5535.99 | 3583.47 | 76.23 | 0 | 1.37 | Gosthanadi | Undrajavaram,Satyawada | 7.6 | 200 | 1 | 200 | 11:90 | Moderately alkaline | Black clay |
| | | | | | | | Mortha canal | Mortha | 7.6 | 230 | 1 | 210 | | | |
| 27 | Unguturu | 8221.59 | 6035.31 | 2186.95 | 4 | 26.60 | Murugu kaluva | Tallapuram,Apparaopet, Kaikaram,Narayanapuram | 7.5 | 250 | 0.5 | 260 | 11:90 | Moderately alkaline | Brown sandy clay |
| | | | | | | | Tokalapudi canal | Kaikaram | 7.5 | 250 | 1 | 180 | | | |
| | | | | | | | Eluru canal | Badampudi | 8.1 | 200 | 0.5 | 100 | | | |
| | | | | | | | Rangarao canal | Kakarlamudi | 7.9 | 210 | 1 | 220 | | | |
| | | | | | | | Old Kakarlamudi | Dontavaram | 7.2 | 210 | 1 | 230 | | | |
| | | | | | | | Middle canal | Ravulaparru | 7.3 | 220 | 0.5 | 250 | | | |
| 28 | Pentapadu | 7590.65 | 7064.61 | 314.12 | 0 | 4.12 | Venkayya kaluva | Ravipadu,West vipparu,Manavalluru | 7.8 | 250 | 2 | 200 | 11:90 | Moderately alkaline | Black clay |
| | | | | | | | Vraklish drain | West vipparru | 7.9 | 230 | 2 | 120 | | | |
| | | | | | | | Low level canal | Mudunuru,Peramalla,Yanalapalli, Akuteegapadu,Godapadu | 7.45 | 230 | 1 | 130 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29 | Denduluru | 3053.45 | 4352 | 3053.54 | 402.00 | 31.59 | Mondukodu Medium drain | Ashram to Kovvali | 7.8 | 300 | 1 | 220 | 11:90 | Moderately alkaline | Brown sandy clay |
| | | | | | | | 10UT Medium drain | Highway to kovvali,Mondukonda merge in 3 km | 7.5 | 250 | 1 | 250 | | | |
| | | | | | | | Kovvali 9UT major drain | Highway to Kolleruon the Dosapadu,Pothunuru | 7.4 | 250 | 1 | 300 | | | |
| | | | | | | | Thavvakodu drain | Kovvali murugu bode | 7.6 | 220 | 1 | 240 | | | |
| | | | | | | | Velini kodu drain | Kovvali murugu bode | 7.8 | 210 | 1 | 260 | | | |
| | | | | | | | Kokkirayi lanka medium drain | Mondukodu to kolleru | 7.8 | 260 | 1 | 220 | | | |
| | | | | | | | seshayya kodu medium drain | Mondukodu to kolleru | 7.4 | 220 | 1 | 280 | | | |
| | | | | | | | Uppukonda Minor drain | Denduluru highway | 7.5 | 250 | 1 | 300 | | | |
| | | | | | | | China Gonderu Minor drain | Denduluru highway | 7.4 | 250 | 1 | 320 | | | |
| | | 253028.81 | 134996.8 | **67518.3** | **13355.261** | 26.68 | | | | | | | | | |

**Existing Aquaculture area classified as per Species cultured & Average salinity of Inlet water source**

| Sl. No | MANDALS COVERED | No. of Villages | Extent ( Hectares) | IMC | Pangasius | L.vannamei | Mud Crab | Seabass | Others | Ave.Salinity in water Source |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | NARASAPURAM | 17 | 2839.38 | 790.48 | 0 | 1990.52 | 60 | 45 | 0 | 10 |
| 2 | MOGALTURU | 6 | 3749.08 | 2567.61 | 0 | 1089.40 | 0 | 91.42 | 0 | 8 |
| 3 | ELAMANCHILI | 16 | 928.02 | 148.56 | 0 | 773.74 | 0 | 0 | 0 | 4.25 |
| 4 | ACHANTA | 10 | 305.03 | 126.40 | 0 | 191.97 | 0 | 0 | 0 | 4.70 |
| 5 | PALAKOLLU | 19 | 1137.93 | 135.70 | 0 | 938.18 | 0 | 0 | 0 | 2.50 |
| 6 | PODURU | 14 | 775.43 | 230.76 | 0 | 544.67 | 0 | 0 | 0 | 1.50 |
| 7 | BHIMAVARAM | 18 | 9009.55 | 7229.52 | 0 | 1780.03 | 0 | 0 | 0 | 3.20 |
| 8 | KALLA | 13 | 6755.27 | 5136.20 | 10.90 | 1618.97 | 0 | 0 | 0 | 1.25 |
| 9 | PALAKODERU | 13 | 994.32 | 67.91 | 0 | 929.61 | 0 | 0 | 0 | 3.50 |
| 10 | VEERAVASARAM | 14 | 1138.70 | 442.14 | 0 | 696.56 | 0 | 0 | 0 | 1.50 |
| 11 | UNDI | 20 | 5100.00 | 2582.67 | 31.70 | 2517.28 | 0 | 0 | 42 | 5.0 |
| 12 | AKIVEEDU | 16 | 4594 | 3470.98 | 0 | 1123.01 | 0 | 0 | 0 | 3.0 |

| Sl. No | MANDALS COVERED | No. of Villages | Extent ( Hectares) | IMC | Pangasius | L.vannamei | Mud Crab | Seabass | Others | Ave.Salinity in water Source |
|---|---|---|---|---|---|---|---|---|---|---|
| 13 | GANAPAVARAM | 21 | 2686.72 | 511.66 | 0 | 2063.24 | 0 | 0 | 0 | 3.0 |
| 14 | PENUMANTRA | 15 | 1179.12 | 5.54 | 0 | 1029 | 0 | 0 | 0 | 2.9 |
| 15 | ATTILI | 14 | 1051.17 | 21.53 | 0 | 939.18 | 0 |  | 0 | 2.70 |
| 16 | NIDAMARRU | 22 | 5635.55 | 4115.70 | 0 | 963.95 | 0 | 0 | 0 | 5 |
| 17 | UNGUTURU | 10 | 2186.95 | 2105.35 | 0 | 81.62 | 0 | 0 | 0 | 3 |
| 18 | NIDADAVOLU | 14 | 286.00 | 162.31 | 0 | 603.30 | 0 | 0 | 0 | 2 |
| 19 | ELURU | 13 | 5242.67 | 4783.63 | 114.19 | 439.92 | 0 | 0 | 0 | 3 |
| 20 | BHIMADOLE | 12 | 3964.25 | 3878.37 | 0 | 86.28 | 0 | 0 | 0 | 1 |
| 21 | DENDULURU | 5 | 3053.45 | 2791.57 | 0 | 102.33 | 0 | 0 | 0 | 2 |
| 22 | IRAGAVARAM | 9 | 177.35 | 0 | 0 | 479.50 | 0 | 0 | 0 | 1 |
| 23 | TANUKU | 4 | 15.14 | 0 | 0 | 15.14 | 0 | 0 | 0 | 1 |
| 24 | PERAVALI | 3 | 131.466 | 0 | 0 | 263.98 | 0 | 0 | 0 | 1 |
| 25 | CHAGALLU | 6 | 58.98 | 32.32 | 0 | 27.04 | 0 | 0 | 0 | 1 |
| 26 | PEDAPADU | 11 | 4085.712 | 3261.11 | 403.24 | 444.19 | 0 | 0 | 0 | 2 |
| 27 | PENUGONDA | 7 | 46.712 | 0 | 0 | 99.45 | 0 | 0 | 0 | 1 |
| 28 | UNDRAJAVARAM | 6 | 76.23 | 0 | 0 | 76.23 | 0 | 0 | 0 | 1 |
| 29 | PENTAPADU | 12 | 314.12 | 271.21 | 0 | 42.87 | 0 | 0 | 0 | 3 |
|  |  | **360** | **67518.3** | **44769.23** | **560.03** | **21951.16** | **60** | **136.42** | **42** |  |

## Classification of zones based on Salinity in 29 Mandals, 354 Revenue villages of West Godavari District

| SL. No | Mandal | Name of the Revenue Villages | Aquaculture (Area in Existence) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | HS(>15 ppt) | | BW(5-15 ppt) | | VLS(0.5-5 ppt | | FW(<0.5 ppt) | | Total extent |
| | | | No. Of Villges | Extent (H) | No. Of Villges | Extent (H) | No. Of Villges | Extent (H) | No. Of Villges | Extent (H) | Extent (H) |
| 1 | Ganapavaram | 21 | 0 | 0 | 0 | 0 | 21 | 2175.11 | 10 | 511.61 | 2686.72 |
| 2 | Attili | 14 | 0 | 0 | 0 | 0 | 3 | 53.87 | 15 | 997.3 | 1051.17 |
| 3 | Penumantra | 15 | 0 | 0 | 0 | 0 | 15 | 1165.12 | 1 | 14 | 1179.12 |
| 4 | Nidamarru | 16 | 0 | 0 | 0 | 0 | 16 | 1574.41 | 16 | 4061.14 | 5635.55 |
| 5 | Akiveedu | 16 | 0 | 0 | 0 | 0 | 16 | 1123.01 | 16 | 3470.98 | 4594 |
| 6 | Kalla | 13 | 0 | 0 | 13 | 1618.97 | 0 | 0 | 13 | 5136.3 | 6755.27 |
| 7 | Undi | 20 | 0 | 0 | 0 | 0 | 16 | 2517.288 | 20 | 2582.67 | 5100 |
| 8 | Palakoderu | 13 | 0 | 0 | 0 | 0 | 13 | 994.32 | 0 | 0 | 994.32 |
| 9 | Veeravasaram | 14 | 0 | 0 | 0 | 0 | 14 | 696.56 | 12 | 442.14 | 1138.7 |
| 10 | Palakollu | 19 | 0 | 0 | 0 | 0 | 19 | 983.614 | 14 | 154.32 | 1137.93 |
| 11 | Poduru | 14 | 0 | 0 | 0 | 0 | 14 | 544.67 | 5 | 230.76 | 775.43 |
| 12 | Elamanchili | 16 | 0 | 0 | 3 | 240.8 | 14 | 526.86 | 10 | 160.36 | 928.02 |
| 13 | Narasapuram | 17 | 0 | 0 | 3 | 745.98 | 14 | 1093.3 | 13 | 1000.1 | 2839.38 |
| 14 | Mogalthuru | 6 | 0 | 0 | 2 | 69.7 | 4 | 1111.77 | 6 | 2567.61 | 3749.08 |
| 15 | Bhimadole | 12 | 0 | 0 | 0 | 0 | 4 | 86.252 | 11 | 3878.004 | 3964.25 |
| 16 | Denduluru | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 3053.45 | 3053.45 |
| 17 | Eluru | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 5242.67 | 5242.67 |
| 18 | Pedapadu | 11 | 0 | 0 | 0 | 0 | 10 | 421.19 | 11 | 3664.522 | 4085.712 |
| 19 | Bhimavaram | 18 | 0 | 0 | 0 | 0 | 11 | 1780.03 | 18 | 7229.52 | 9009.55 |
| 20 | Achanta | 10 | 0 | 0 | 0 | 0 | 7 | 170.73 | 5 | 129.3 | 305.03 |
| 21 | Chagallu | 6 | 0 | 0 | 0 | 0 | 3 | 26.84 | 7 | 32.14 | 58.98 |
| 22 | Nidadavolu | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 286 | 286 |
| 23 | Peravali | 3 | 0 | 0 | 0 | 0 | 3 | 131.466 | 0 | 0 | 131.466 |
| 24 | Undrajavaram | 6 | 0 | 0 | 0 | 0 | 2 | 53.04 | 4 | 23.19 | 76.23 |
| 25 | Tanuku | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 15.14 | 15.14 |
| 26 | Penugonda | 7 | 0 | 0 | 0 | 0 | 7 | 46.712 | 0 | 0 | 46.712 |
| 27 | Iragavaram | 9 | 0 | 0 | 0 | 0 | 9 | 177.352 | 0 | 0 | 177.352 |
| 28 | Pentapadu | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 314.12 | 314.12 |
| 29 | Unguturu | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 2186.95 | 2186.95 |
| **Total** | **29** | **354** | **0** | **0** | **21** | **2675.45** | **235** | **17458.51** | **264** | **47384.3** | **67518.292** |

From the survey report it is evident that Aquaculture is being taken up in 29 mandals,360 villages to an extent of 67518.3 hectares . Out of the area identified 59,600 hectares is registered , 7,870.62 hectares is unregistered while 10986.951 hectares is identifies as Potential area for Aquaculture based on soil characteristics and other related parameters.

**Grading of mandals-Percentage of Aquaculture with reference to Total Ayacut (hectares)**

| Sl no | Mandal | Total Ayacut | Existing Aquaculture area | Percentage(%) |
|---|---|---|---|---|
| 1 | Mogulturu | 5684 | 3749.08 | 65.95 |
| 2 | Kalla | 10766.48 | 6755.27 | 62.74 |
| 3 | Akeevedu | 7579.25 | 4594 | 60.61 |
| 4 | Nidamarru | 7480.81 | 5635.55 | 75.33 |
| 5 | Pedapadu | 7664.42 | 4085.712 | 53.61 |
| 6 | Undi | 12384.75 | 5100 | 41.77 |
| 7 | Narsapuram | 9228 | 2839.38 | 30.76 |
| 8 | Unguturu | 8221.59 | 2186.95 | 26.6 |

It is evident that 17 mandals exhibit < 20% Aquaculture of the total area while Undarajuvaram, Chagallu, Tanuku, Bhimadole mandals shows <2% Aquaculture.

**Area that comes under the purview of Coastal Aquaculture Authority and State is applicable to only 6 mandals out of 29 mandals where Aquaculture is active. This is based on tidal influence in the drains.**

| Sl No | Mandal | Total Existing Aquaculture area | Existing Aquaculture area | | Total potential Area identified | Potential Area | |
|---|---|---|---|---|---|---|---|
| | | | CAA | State | | CAA | State |
| 1 | Palakoderu | 994.32 | 55.23 | 939.09 | 485 | 10 | 475 |
| 2 | Bhimavaram | 9009.55 | 162.72 | 8847.09 | 951 | 80 | 871 |
| 3 | Achanta | 305.03 | 2.94 | 302.09 | 335.97 | 110 | 225.97 |
| 4 | Elamanchili | 928.02 | 199.76 | 728.26 | 800 | 180 | 620 |
| 5 | Narsapuram | 2839.38 | 600 | 2239.38 | 638.97 | 155 | 483.97 |
| 6 | Mogulthur | 3749.08 | 225 | 3524.08 | 839.55 | 50 | 789.55 |
| | Total | 17825.38 | 1245.65 | 16579.99 | 4050.49 | 585 | 3465.49 |

**** Remaining 23 mandals the existing area i.e.49692.92 and potential area i.e. 9243.01 hectares comes under state alone**

**It is further submitted that out of 67518.3 hectares identified under existing aquaculture –species wise the following extent reported**

- Fish (IMC) - 44869.23 Hect
- Fish ( Pangasius ) - 560.03 Hect
- Shrimp- (L.Vannamei) - 21951.16 Hect
- Fish( Sea bass ) - 136.42 Hect
- Mud crab - 60 Hect
- Others - 42 Hect

**Existing Aquaculture area based on Salinity of the drain/canal**

- Highly Saline (>15 ppt) - Nil
- Brackish Water (5-15 ppt) - 22 Villages - 2688.7 Hectares
- Very Low Saline (0.5-5 ppt) - 236 villages - 17444 hectares
- Fresh water (<0.5 ppt) - 264 villages - 47182.3 hectares

**Grading of mandals-Extent wise -Existing area Aquaculture in hectares**

| Sl No | Mandal | Extent in Hectares |
|---|---|---|
| 1 | Bhimavaram | 9009.55 |
| 2 | Kalla | 6755.27 |
| 3 | Eluru | 5242.67 |
| 4 | Undi | 5100.00 |
| 5 | Nidamarru | 5635.55 |
| 6 | Pedapadu | 4085.712 |
| 7 | Bhimadole | 3964.25 |
| 8 | Mogultur | 3749.08 |
| 9 | Denduluru | 3053.54 |

**In 16 mandals the extent ranges from 300-<3000 hectares and in 4 mandals the extent is <100 hectares i.e. Tanuku-15.14 hectares, Chalagallu-59.36 hectares, Undarajavaram-76.23 hectares & Penugonda-99.45 hectares.**

**Potential Area Identified (in hectares for conversion)**

| Sl No | Mandal | Area in Hectares |
|---|---|---|
| 1 | Ganapavaram | 1360.47 |
| 2 | Nidamaru | 1259.72 |
| 3 | Pedapadu | 1000.00 |
| 4 | Undi | 972.93 |
| 5 | Bhimavaram | 951.69 |
| 6 | Mogultur | 845.7 |
| 7 | Veeravasam | 826.84 |
| 8 | Elamanchili | 800.00 |
| 9 | Kalla | 777.08 |
| 10 | Akeevedu | 682.64 |
| 11 | Narsapur | 638.97 |

From the survey report it is evident that Pentapadu, Undarajavaram,Penugonda,Tanuku,Iragavaram mandals showed “0” hectares & Unguturu – 4 hectares as such no further scope for expansion, while Chalgallu- 20 , Peravali- 75 hectares as agriculture is predominates over Aquaculture based on soil and water parameters. The other 10 mandals potential area ranged between 100 - 550 hectares may be permitted based on soil reports.

Categorization of extent based on salinity and Factors to be considered for species selection:

**Brackishwater (5-15 ppt )**

| Sl No | Mandal | No of villages | Extent |
|---|---|---|---|
| 1 | Kalla | 13 | 1618.97 |
| 2 | Elamanchili | 3 | 240.8 |
| 3 | Narsapuram | 3 | 745.98 |
| 4 | Mogulturu | 2 | 69.7 |
| | Total | 21 | 2675.45 |

- **5 Mandals 22 Villages 2688.7 Hectares**
- **Species suggested: Shrimp, Mud Crab, Lates calcarifer etc.**

**Very low saline (0.5 ppt -5 ppt)**

| Sl No | Mandal | No of villages | Extent |
|---|---|---|---|
| 1 | Undi | 16 | 2517.11 |
| 2 | Ganapavaram | 22 | 2175.61 |
| 3 | Bhimavaram | 11 | 1780.03 |
| 4 | Nidamaru | 16 | 1574.41 |
| 5 | Penumantra | 15 | 1165.12 |
| 6 | Akeevedu | 16 | 1123.01 |
| 7 | Mogulturu | 4 | 1111.77 |
| 8 | Narsapur | 14 | 1093.3 |

- 17458.51 hectares in 22 mandals 235 villages have been recorded as Very low saline zone
- Undi & Ganapavaram - >2000 hectares
- Bhimavaram, Nidamaru, Penumantra, , Mogultur & Narsapur- >1000 hect - <2000 hect
- Remaining 14 mandals - < 1000 hectares

**Species suggested : Shrimp in mandals > 1000 - 2000 hect and Fish in mandals <1000 hect**

**Freshwater Zone (< 0.5 ppt) Hect**

| Sl No | Mandal | No of villages | Extent |
|---|---|---|---|
| 1 | Palakoderu | 0 | 0 |
| 2 | Peravali | 0 | 0 |
| 3 | Penugonda | 0 | 0 |
| 4 | Iragavaram | 0 | 0 |

****47384.3 hectares is recorded as freshwater zone-264 villages in 25 mandals**

- **Species suggested : Fish alone**

**Points for Consideration :**

- 47182.3 hectares is recorded as Fresh water zone - 264 villages in 25 mandals
  Species suggested : Fish alone

  Points for considerations for approving the above

- Existing Unregistered area i.e. 7,870.62 hectares may be regularised

- In the mandals where existing aquaculture area does not exceed 100 hectares i.e. Tanuku - 15.14 hect Chalagallu-59.36 hect,Undarajavaram-76.23 hect & Penugonda-99.45 hectares - future permissions may not be permitted as potential area identified is almost nil

- The potential area identified i.e. 4868.28 hectares in 6 mandals ( Narsapur, Mogultur, Bhimavaram, Palakoderu, Achanta, Elamanchili as the salinity fluctuates between 10-15 ppt and land is less productive as per soil reports of Agriculture Department

- Regarding potential area that is suitable for Aquaculture –Pentapadu, Undarajavaram, Penugonda, Tanuku, Iragavaram showed "0" hectares & Unguturu – 4 hectares , Chalgallu & Peravali- 20 hectares each ; Palakoderu-50 hectares as such no further expansion of Aquaculture may be restricted

**Objections received during Grama sabhas / in lieu of publicity given through Print & Electronic media/ Grievance received during Meekosam**

1. Multiple representations from Villagers /Agriculture farmers of Yendagandi Village , Undi Mandal of West Godavari was received requesting not to include their village in the Aquazone purview for the lands that are already converted to aqua ponds are creating huge scarcity to drinking water , turning the soils more alkaline making further neighbouring lands unfit for raising agricultural crops. However the grievance does not include what needs to be done with existing aquaculture area but vividly claimed not to include their village in aqua zone declaration.

2. Pennada Agraharam & Mogallu village of Palakoderu manadal not to permit further intensification of aquaculture

3. Tunduru village of Bhimavaram mandal not to permit further intensification of aquaculture

4. Kovvali village of DEnduluru mandal not to permit further intensification of aquaculture

**Reconduct of gramasabha as per the demand of Public representatives:**

There was a request from Public representatives of Kalla,Undi and Akeevedu madals to reconduct Gramasabhas for a common consensus in agreeing to the aquazonation data survey. However a few of the villagers concerned are not in agreement to this.

Mode of Implementation:

- To be published in leading newspaper and call for public opinion and confirmation of survey data – giving 14 days time
- To be uploaded in the District website and call for public opinion and confirmation of survey data – giving 14 days time
- To be notified in the Government Gazette

Submitted for kind consideration

Joint Director of Fisheries

Encl:- 1) Annexure for AquaZonation
2) Mandal maps & Village maps