**New model for M.Sc. / M. Tech. and PhD Thesis in colleges**

A large number of thesis in irrigation and agriculture are being prepared (may be more than thousands per year) by the students per suing the above studies. The objective of the thesises is developing the skill of the student in self study, research work, analytic and writing and expression power as well as to give direction to future work. These thesises have to be practical oriented and not copy of the past work or merely theoretical. A review indicates them of little value in the field, either to increase agricultural productivity / environmental impact or to enhance the skill of the student for working in the department of agriculture / irrigation. The references in the bracket are from Bairathi (2017, soft copy is available free of cost from bairathi@hotmail.com on request) Therefore for convenience of the students and teachers, a brief list is proposed as under:

**Irrigation and agriculture topics) - jointly /individually by the irrigation engineering and agriculture students)**

1. Inter action of the Agriculture and irrigation policy of the center and state (see paragraph 10.7.2, figure 10.3 and 11.6)
2. Impact of the agriculture research farms on the ground water table in the region (see figure 8.1, 8.2 and paragraph 8.6.3 onwards)
3. Productivity of water at the agricultural research farms (see Chapter 2 and 11)
4. Benefit cost ratio or economic evaluations of agriculture research farms (see Chapter 2 and 11)
5. Performance evaluation of KVKs with respect to water and productivity (see paragraph 10.12.2)
6. Impact of agriculture mechanization on environment (see figure 10.3 and 11.6)
7. Impact of agriculture mechanization on animal protection like camel, oxen etc. and production of bio- fertilizers and proposed policy.
8. Animal employment, energy saving and subsidies and policies for marginal farmers.
9. Impact of the agriculture subsidies on marginal and poor farmers and WUAs (see figure 10.3, 11.6, paragraph 10.7.2.1 and table 1.6)
10. Present trends of subsidies on tube wells, electricity and its impact on ground water and proposed policy for the future (see paragraph 10.7.2.1, figure 8.1, 8.2)
11. Interrelation ship of DOA and WRD in the operation of irrigation canals – present and future (see figure 0.5 and 0.6)
12. Problems and solutions of WUAs (see Chapter 10 and 11)
13. Role of DOA in operation and management of irrigation projects (see figure 0.5 and 0.6)
14. Effective monitoring of WUAs (see Chapter 10 and 11)
15. Draw backs of the Present irrigated agriculture statistics collection and publication and proposed methodology (see chapter 1 and 11)
16. Inter relationships of water shed works, Ground water storage and surface water storage.
17. Present and proposed practices of climatic data collection, analysis and dissipation at the agricultural research stations ( see table 3.7 and paragraph 6.13 and figures 6.38 to 6.40)
18. Present efficiency of irrigation projects and scope of improvement ((see Chapter 2 and 11)
19. Preparation and publishing of water accounts of a reservoirs vis a vis irrigated area (see Chapter 4)
20. Preparation and publishing of water accounts of canals, water courses etc. vis a vis irrigated area see Chapter 5)
21. Preparation and publishing of water accounts of tube wells vis a vis irrigated area
22. Cropping pattern and crop diversity according to agro climatic regions and market trends
23. Growth stages and water requirement of crops as per agro climatic zone (see Chapter 6, figure 6.4 to 6.10)
24. Categorization of thesis produced and their practical utility

**Only related to water (for irrigation engineering students)**

1. Categorization of thesis produced and their practical utility
2. Status of ground water in irrigated agricultural (quantity and quality)

**Only related to agriculture (for agriculture students)**

1. Categorization of thesis produced and their practical utility
2. Machineries for fruit picking, packing and forwarding to marketing centers (like Jamun, mangoes, plums, Adu, etc.) – facilities available and cost- region wise (see figure 10.3 and 11.6).
3. Present Import, export, price control and marketing policy of agriculture products and draw backs (see figure 10.3 and 11.6)
4. Stabilization of prices of agriculture products like onions, potatoes, pulses and policies.
5. System of ware houses, collection and payment to the farmers, locations, storage capacity, distribution and price control. It can be region wise, crops wise (see figure 10.3 and 11.6)
6. Present and proposed policies of ware houses
7. Present and future Cold storage and rental values (see figure 10.3 and 11.6)
8. Present and future storage system of other crops like onion, Garlic, spices
9. Economic evaluation of system of ware houses.
10. Marketing centers ( mandies), their capacity and other facilities available and direction for the future
11. Simplified methods of irrigation scheduling (see figure 6.38 to 6.40)
12. Present and future services to the farmers and their charges
13. Scope of private public partnership in agriculture. (see figure 10.3 and 11.6)
14. Present fertilizer consumption and pollution hazards and proposed policy for the future. (see figure 6.12 ii)
15. Categorization of thesis produced and their practical utility.
16. Performance evaluation of irrigation of fields in a irrigation project (see paragraph 6.18)
17. Physical status of sprinklers and their performance in a district (see figure 6.4.3).
18. Physical status of drips and their performance in a district or Tehsil
19. Benefit cost ratio / performance of sprinklers and drips in the field (see figure 6.4.3).
20. Waste land development and future scope (see figure 1.1 and 1.2) with rules

The above is a very short list and can be more exhaustive. Some topics can be taken by engineering students and agriculture officers both. The topics must be open to all branches, such as Soil science, Agronomy, Extension etc. just as a farmer is concerned with all topics. Even in the present era of expertise, he has to have a good knowledge of all activities related to agriculture. Also these topics concern to every agriculture officer in the field. A good study is easy and possible in the present computer era. For ease of students and teachers all the past thesis can be uploaded on college web site. It helps in avoidance of duplicity, direction to the future work and extraction of useful material. Now the time has come that the state governments must prepare some rules, guide lines and topics for the theses of post graduate studies. These may change every year and therefore may be prepared in advance and declared on internet. Govt. spends huge money in the universities and colleges and the govt. should get some practical output.

The topics must be approved by a joint committee of professors and field officers from DOA of not less than 10. The candidate must submit a brief synopsis of the topic including its field utility. The scope of work should include at least 1/3rd time in the field / KVKs / IMTI / WALMI / demonstration farms etc. Help of agriculture supervisors can be taken in data collection. This is possible only when the DOA and teaching institutions coordinate with each other. The teaching institution has no right to work in isolation. In fact the thesis should be a joint work of DOA and faculty to benefit the student as well as to the DOA. This helps in better level of education as well as in the better performance of the department. Where ever required WRD should also be involved. The thesis should also be examined by a committee. Important recommendations must be forwarded to the state govt. for consideration and feedback. Thus it requires a hard work both by the student and guide.

**References**

**Bairathi, V.K. (2017) Operation of irrigation projects for efficient agriculture and canal lining policy**- published by Himansu publications,464, sector 11, hiran Magri, Udaipur-1;379/4 –B, - Prakash house, Ansari road, Darya Ganj, New Delhi -2; e mail-himansupublications@gmail.com