



LOCAL GOVERNMENT DEPARTMENT



RAINWATER COLLECTION AND UTILISATION SYSTEM (SPAHS)

BY

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BACKGROUND



- YAB PRIME MINISTER ON THE 27 MARCH 2007 DURING THE NATIONAL WATER COUNCIL ANNOUNCED SPAH PROVISION TO BE PUT INTO THE UNIFORM BUILDING BY LAW 1984 (UBBL).
- A PAPER HAD BEEN PRESENTED AT MNKT-58 ON THE 22 JUN 2007 AND THE MEETING AGREED IN PRINCIPLE ON THE SPAH IMPLEMENTATION. HOWEVER KPKT HAD BEEN INSTRUCTED TO DO RESEARCH ON THE DESIGN AND HEALTH ASPECTS.
- AFTER MNKT-58, KPKT CONDUCTED A MEETING WITH TECHNICAL AND PROFESIONAL BODIES ON THE 24 JULY 2007.



BACKGROUND



- REDHA, THROUGH THEIR LETTER DATED 31ST MARCH 2008 HAD SUGGESTED THAT THE SPAH SHOULD BE IMPLEMENTED IN STAGES STARTING WITH BIG BUILDINGS SUCH AS INSTITUTIONAL AND COMMERCIAL BUILDINGS FOR WHICH THE RAINWATER CAN BE ENTIRELY USED.
- THE IMPLEMENTATION OF SPAH CAN RUN SMOOTHLY WITH MAINTENANCE TEAM IN THE AFORESAID BUILDING.
- REDHA ALSO RECOMMENDED THAT THE EXECUTION OF SPAH SHOULD NOT BE COMPULSORY TO THE HOUSING PROJECTS FOR THE MEAN TIME.



BASIC CONSIDERATION



PILOT PROJECTS

A FEW PROJECTS WERE UNDERTAKEN AT THE FOLLOWING LOCATIONS IN ACCORDANCE WITH THE CIRCULAR OF 1999:

Government Projects

- 96 UNIT OF HOUSES IN PKNS HOUSING PROJECT AT KOTA DAMANSARA.
- MULTI PURPOSE HALL AND PUBLIC MARKET PROJECT IN MAJLIS PERBANDARAN SEBERANG PERAI; AND
- COURT AND FOOD COURT PROJECT IN MAJLIS PERBANDARAN SEBERANG PERAI.



BASIC CONSIDERATION



Projects in Private Sector

- ONE UTAMA SHOPPING COMPLEX; AND
- 7,845 UNIT OF HOUSES FOR HOUSING PROJECTS IN SANDAKAN, SABAH FROM YEAR 2001 TO 2007.



BASIC CONSIDERATION



THE IMPLEMENTATION OF SPAH REVEALED THE FOLLOWING LESSONS:

- LARGE BUILDING SUCH AS WET MARKETS, HALLS AND SHOPPING COMPLEXES DO NOT FACE MAJOR PROBLEM DURING THE OPERATION OF SPAH BECAUSE THE ERECTION COST IS MUCH LOWER THAN THE OVERALL BUILDING COST. IN FACT THE COLLECTED RAIN WATER CAN BE USED FOR THE MULTIPLE PURPOSES SUCH AS GENERAL CLEANING, LAVATORY AND LANDSCAPING.
- ASIDE FROM THE USAGE OF WATER BEING REDUCED AND THE RETURNS ON INSTALLATION CAPITAL/COST, A GOOD SUPERVISION BY THE MAINTENANCE TEAM ALSO CONTRIBUTES TO THE OBJECTIVE OF SPAH SYSTEM.



BASIC CONSIDERATION



IT WAS EVIDENCED THAT THE SPAH PROGRAM WAS SUCCESSFULLY IMPLEMENTED IN RESIDENTIAL AREAS WHICH ARE FACING WATER PROBLEM, FOR EXAMPLE IN SANDAKAN.

HOWEVER DUE TO FACT THAT THE WATER SUPPLY IS NOT A MAJOR PROBLEM AT CERTAIN AREAS, THE SPAH SYSTEM IS RARELY IMPLEMENTED.



BASIC CONSIDERATION



FACTOR DISCOURAGING THE USE OF SPAH:

- A) SUFFICIENT WATER SUPPLY;
- B) LOWER WATER RATE;
- C) DESIGN ASPECT WHICH IS LESS ATTRACTIVE ;
- D) THE PRACTICALITY OF SPACE REQUIREMENT FOR WATER STORAGE TANK; AND
- E) HIGH INSTALLATION COST OF WATER PUMP.



THE ADVANTAGE OF SPAH



THE ADVANTAGES OF SPAH ARE AS FOLLOWS:

- A) CAN REDUCE PUBLIC WATER DEMAND IN A LONG TERM PERIOD;
- B) CAN ASSIST IN SUPPLYING WATER DURING WATER CRISIS;
- C) CAN PREVENT WATER POLLUTION; AND
- D) CAN REDUCE SURFACE RUNOFF INTO STORM DRAINS
- E) IN LINE WITH THE GREEN TECHNOLOGY CONCEPT.



SPAH IMPLEMENTATION PROPOSAL



AFTER THE DISCUSSION BETWEEN PROFESSIONAL BODY, GOVERNMENT AGENCIES, NAHRIM, REHDA, NGO, PBT AND OBSERVATION ON THE PROJECTS IMPLEMENTED IT IS RECOMMENDED THAT THE FOLLOWING BUILDINGS BE INCLUDED FOR INSTALLATION OF SPAH WATER TANK:

- A) THE MINIMUM CAPACITY OF WATER TANK IS $5M^3$ FOR EVERY $100M^2$ ROOF AREA :-
- WET MARKETS
 - INSTITUTIONAL BUILDINGS
 - SHOPPING COMPLEXES
 - SPORT COMPLEXES
 - NON-LANDED PROPERTIES



SPAH IMPLEMENTATION PROPOSAL



B) THE MINIMUM CAPACITY OF WATER TANK IS $3M^3$ FOR EVERY $100M^2$ ROOF AREA :

- ALL RESIDENTIAL AND OFFICE BUILDINGS ABOVE 5 STORIES
- ALL FACTORIES/INDUSTRIAL BUILDINGS. HOWEVER THE CAPACITY OF WATER TANK FOR TOILET SHOULD BE LIMITED UP TO $6M^3$.

THE INSTALLATION OF SPAH WATER TANK FOR THE REMAINING BUILDINGS SUCH AS TERRACE HOUSES, DOUBLE STOREY HOUSES, BUNGALOWS AND OTHER BUILDING WHICH ARE NOT MENTIONED ABOVE IS NOT NECESSARY AT THIS STAGE BUT ENCOURAGED.



DESIGN CRITERIA OF SPAH



A) WITHOUT WATER PUMP

IN ORDER TO REDUCE THE INSTALLATION AND MAINTENANCE COST, SPAH WATER TANK CAN BE PLACED ONTO THE GROUND AT CERTAIN GRAVITY LEVEL. NEVERTHELESS IT REQUIRES MORE SPACE AND MAY LACK IN AESTHETIC VIEW.

B) WITH WATER PUMP

THE WATER TANK CAN BE BURIED IN THE GROUND BUT THE INSTALLATION AND MAINTENANCE COST WILL BE INCREASED. FOR TOILET USES, THE ADDITIONAL WATER TANK FOR SPAH IS STILL NEEDED AND TO BE INSTALLED AT THE TOP OF CEILING. THEREFORE THE FINAL LOCATION OF SPAH WATER TANK AND THE NEEDS OF WATER PUMP SHOULD BE DETERMINED BY THE CONSULTANTS TO ENSURE THE ESTHETIC VALUE, EFFECTIVENESS AND DESIGN PRACTICALITY.



DESIGN CRITERIA OF SPAH



THE CONSIDERATION OF COST, DESIGN EFFECTIVENESS, ROOF CLEARANCE AREA, TYPE OF USAGE, TOTAL NUMBER OF CONSUMER AND INTENSITY OF RAIN WATER AT THE PROPOSED BUILDING SHOULD BE MADE WHILE SELECTING THE SIZE OF SPAH WATER TANK.

SPAH IS NOT SUITABLE FOR THE TOILET USES IN MULTI STOREY BUILDING DUE TO:

- A) LIMITED ROOF AREA
- B) A LARGE NUMBER OF TOILETS.
- C) HIGH INSTALLATION AND MAINTENANCE COST

BASICALLY THE RAIN WATER WILL BE FILTERED FROM SOLID WASTES FOR A FEW MINUTES BEFORE CHANNELING TO THE STORAGE WATER TANK.



THE GUIDELINE



A NEW IMPROVED GUIDELINE SHALL BE PRODUCED IN ORDER TO PROVIDE PBT WITH SOME LEVEL OF UNDERSTANDING DURING APPROVAL STAGE FOR SPAH SYSTEM SUBMITTED BY DEVELOPER / OWNER IN THE FUTURE.



IMPLEMENTATION STRATEGIC



- KPKT IN FINAL EVALUATION STAGE
 - BUILDING PLAN APPROVAL
 - CONDITION BY LOCAL AUTHORITY
 - ADMINISTRATIVE IN NATURE
 - INCLUDE IN UBBL
 - LEGALLY BINDING
 - COULD BE RESTRICTIVE



SUMMARY



THE RAINWATER COLLECTION UTILIZATION SYSTEM (SPAH) IS A SYSTEM OF COLLECTING AND RE-USING OF THE RAIN WATER. IN FACT THIS IS A VERY EFFECTIVE SOLUTION IN REDUCING HIGH TREATED WATER DEMAND ESPECIALLY DURING WATER CRISIS AND CAN PREVENT THE RISK OF FLASH FLOOD.

THE SPAH SYSTEM IS ONE OF THE GOVERNMENT INITIATIVES IN PROVIDING THE BEST DEVELOPMENT PRACTICES WHICH ARE ENVIRONMENTALLY FRIENDLY.



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THANK YOU