



LUŽNICE – NOVÁ ŘEKA – NEŽÁRKA WATER MANAGEMENT JUNCTION

ASSESSMENT OF THE EFFECTS OF DESIGNED AND POSSIBLE RETENTION MEASURES ON HYDRAULIC CHARACTERISTICS OF THE LUŽNICE AND NEŽÁRKA RIVERS

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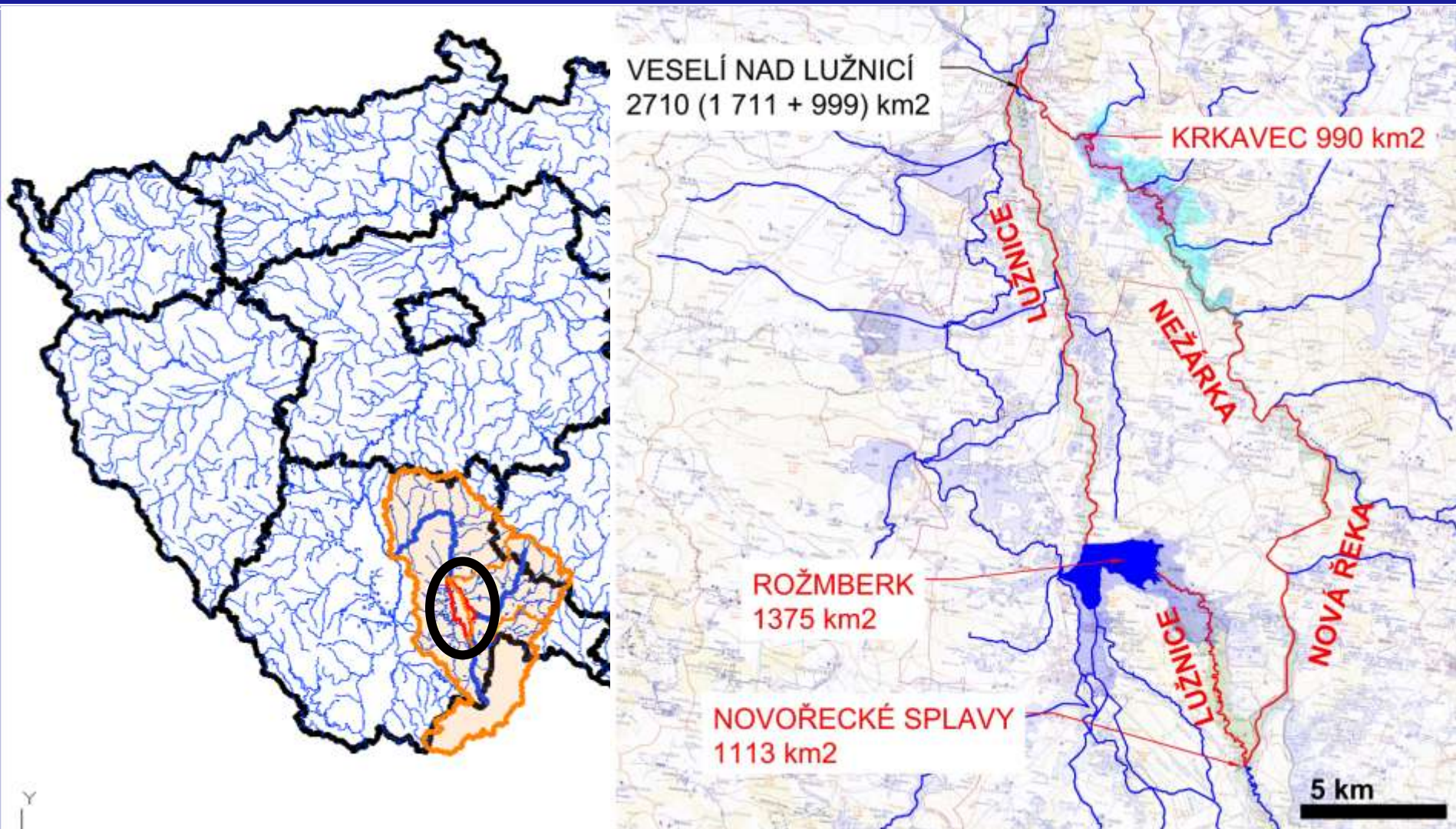


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1. THE AREA OF INTEREST



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RESERVOIR AREA

SPILLWAY

OF

D (L

ARK

NTR

R RE

$2 \text{ km} \times 1 \text{ km} \times 1 \text{ m} = 2 \text{ million m}^3$

DAM (WITH PROTECTED OAK ALLEY)

BOTTOM OUTLET(S) AND UPPER DAM BODY



POVODŇ VLTAVY



WEIR „JEMČINA“ (TWO OPENINGS)

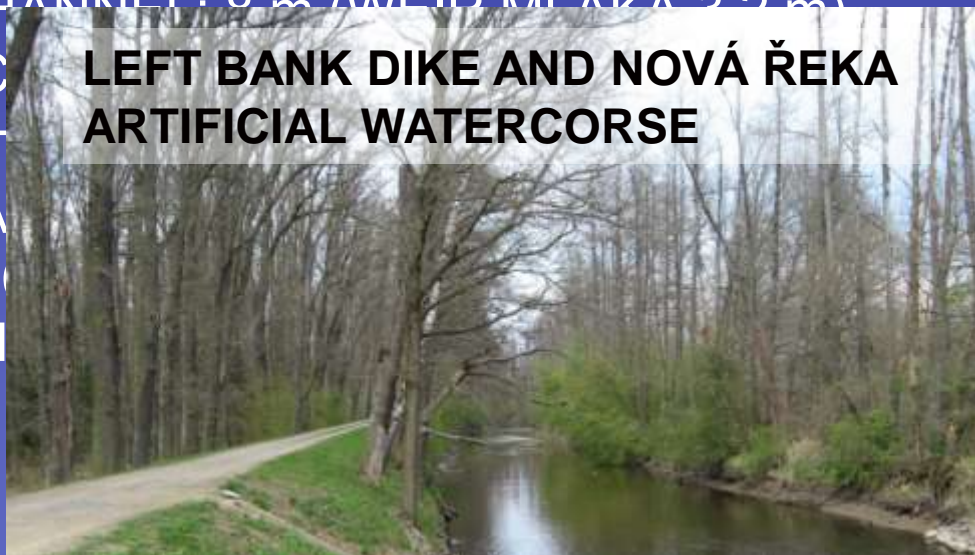


WEIR „JEMČINA“ (TWO OPENINGS)



ENCE AT ELEVATION BETWEEN
CHANNEL: 8 m (WEIR MLÁKA 2.2 m)

**LEFT BANK DIKE AND NOVÁ ŘEKA
ARTIFICIAL WATERCORSE**



WEIR „SPLAV“ (ONE OPENING)



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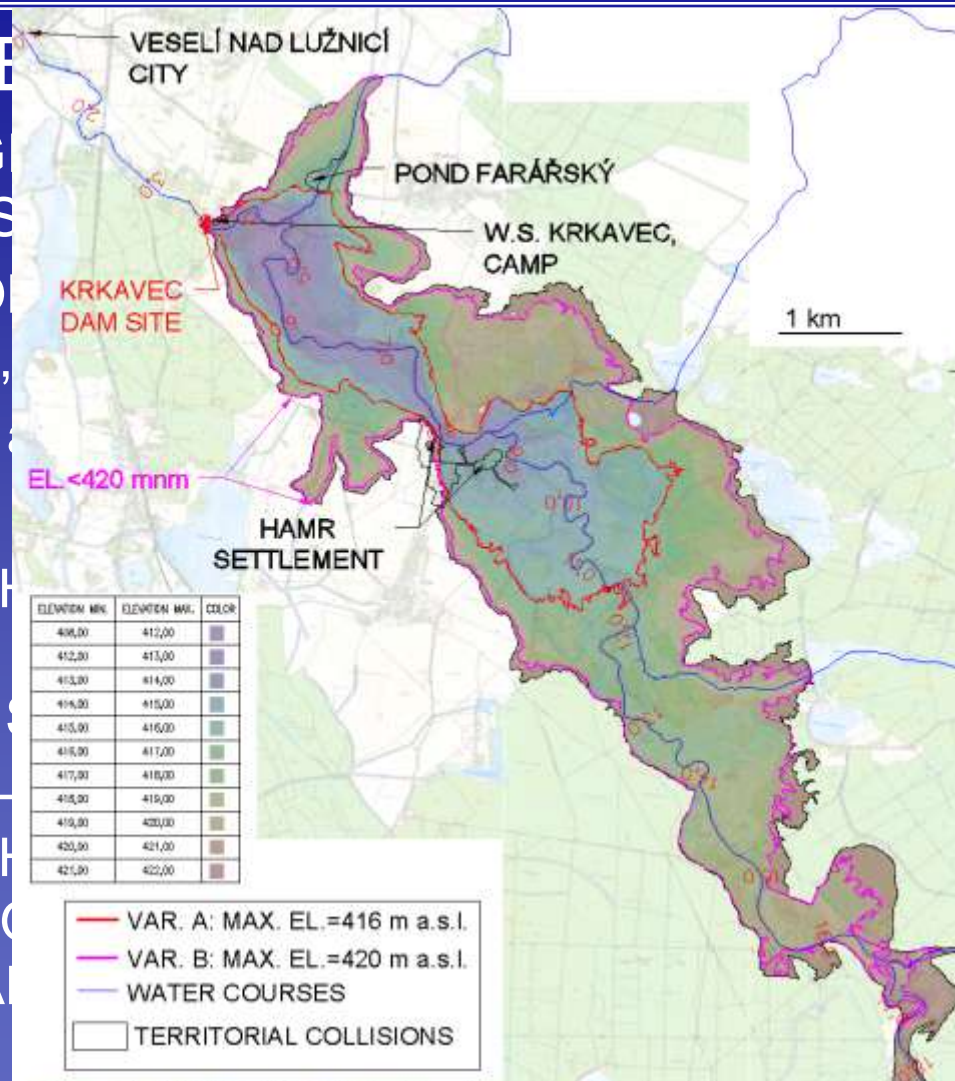
1. THE AREA OF INTEREST

VICINITY OF POTENTIAL KRKAVEC DAM SITE



PROTECTION OF HAMR
EXTEND HAVE TO BE CL

- VAR. B: FLOODING OF THE
HAMR SETTLEMENT (FLO
NOT REAL), POND FARÁ



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COOPERATING FOR SUCCESS.



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2. AIMS OF THE STUDY

- A. DATA SELECTION FOR PROCESSING OF THE STUDY
- B. DEFINITION OF SCENARIOS AND ANALYSIS OF THE ISSUE
- C. JUDGEMENT OF SELECTED SCENARIOS FOR THE VESELÍ NAD LUŽNICÍ CITY (INCLUDING HYDRAULIC 2D MODELING) AND EVALUATION OF IMPACT TO OTHER EXPOSURED AREAS BELOW JUNCTION OF LUŽNICE AND NEŽÁRKA WATER COURSES

3. DATA FOR PROCESSING OF THE STUDY

- VARIOUS DATA WAS USED FOR THE PURPOSE OF STUDY (CITED AT FINAL REPORT)
- THE MOST IMPORTANT DATA FOLLOWS:
 - [1] FLAMIS Project – Final Report. ČVUT Praha, ČHMÚ, PVL, Ecole Polytechnique Fédérale, Lausanne, Praha and Lausanne, 2006.
 - [2] Rožmberk Pond – the study of increasing flood control capacity. VODNÍ DÍLA – TBD, a.s., Praha, 2008.
 - [3] Flood control measures of the town of Veselí nad Lužnicí. VH - TRES, s.r.o., České Budějovice, 2011.

4. METHODOLOGY

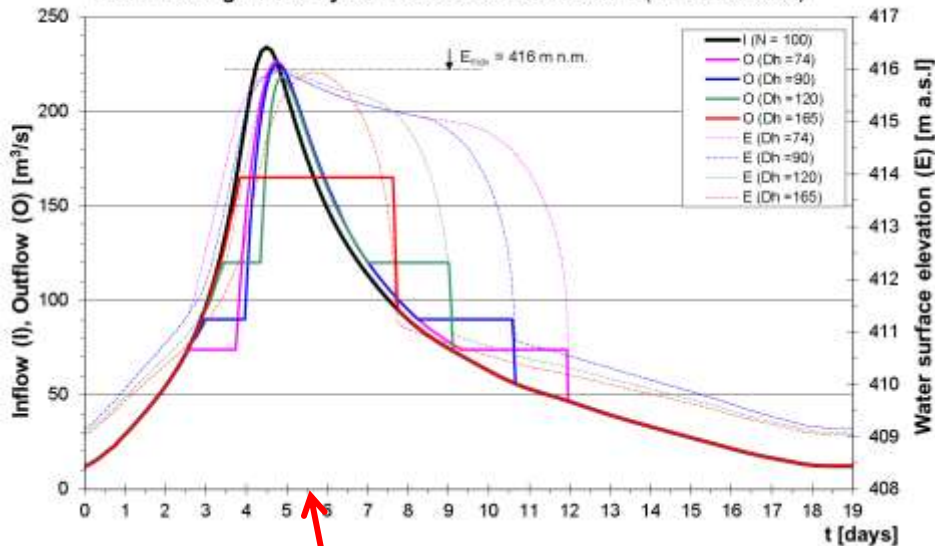
- 1. SOLUTION OF FLOOD CONTROL FOR TWO RESERVOIRS (PLACED PARALLELLY AT TWO WATER COURSES)
- DEFINITION OF SCENARIOS (COMBINATION OF RESERVOIRS):
 - ROŽMBERK POND: PRESENT vs INCREASED FLOOD CONTROL STORAGE
 - KRKAVEC FLOOD RETENTION BASIN: VARIANT A vs VARIANT B, DIFFERENT VALUES OF HARMLESS DISCHARGE
 - HYDROLOGICAL CONSIDERATIONS (THE ISSUE OF THE JUNCTION HYDROLOGY, VOLUMES OF FLOODS ETC.)

4. METHODOLOGY

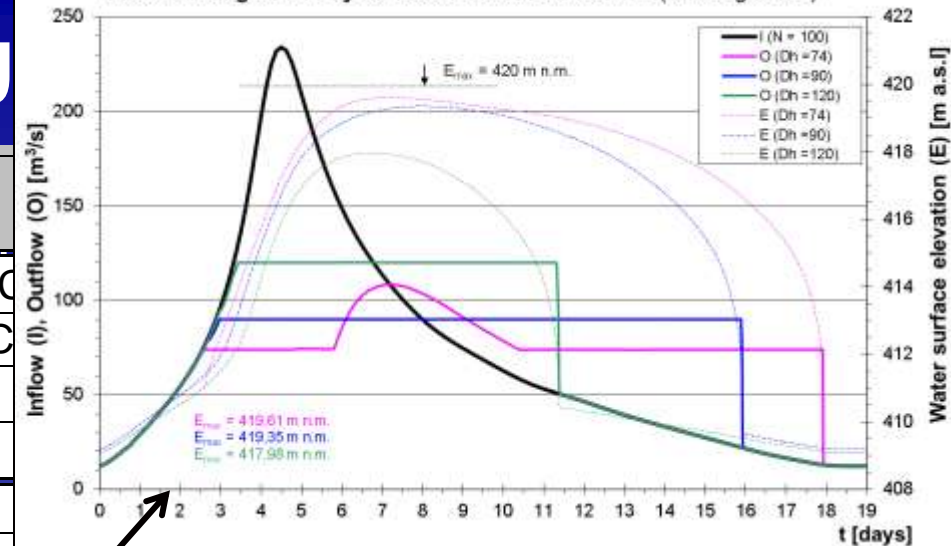
➤ 2. ASSESSMENT OF SELECTED SCENARIOS USING 2D HYDRAULIC MODEL IN VESELÍ NAD LUŽNICÍ CITY WITH RESPECT TO DESIGNED FLOOD CONTROL MEASURES

(PEAK INFLOWS TO VESELÍ NAD LUŽNICÍ DETERMINED IN PREVIOUS STEP REPRESENT INITIAL CONDITIONS FOR 2D MODELING: ASSESSMENT OF VELOCITIES, WATER SURFACES, ETC.)

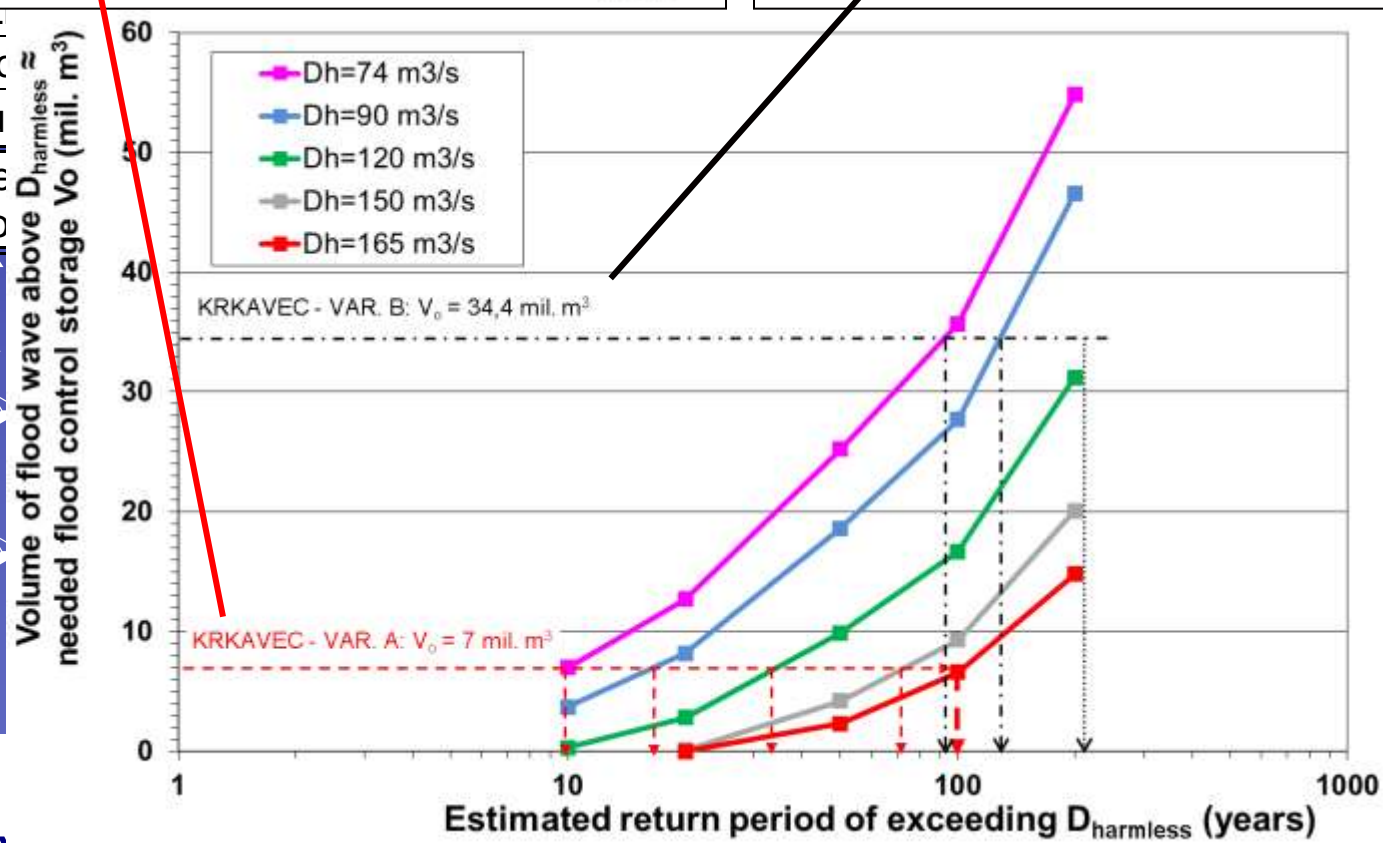
Flood routing of 100 - year flood: Krkavec variant A ("the small one")



Flood routing of 100 - year flood: Krkavec variant B ("the large one")



- 8. LUZ
- 9. Floc
- 10. Lu
- 11. Re
- (appro



38 %



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5. RESULTS

- 2. ALTHOUGH KRKAVEC AT VARIANT A („THE SMALL ONE“) HAS RELATIVELY SMALL FLOOD CONTROL STORAGE (WITH RESPECT TO THE FLOOD VOLUMES), IT CONSTITUTES THE COUNTERPART TO ROŽMBERK POND ON NEŽÁRKA. ADDITIONAL OPTIMIZATION OF BOTH THE WATERWORKS (TOGETHER WITH THE NOVOŘECKÉ SPLAVY HYDRAULIC STRUCTURE) IS POSSIBLE (ESPECIALLY WITH RESPECT TO IMPROVING HYDROLOGICAL FORECAST FOR EXAMPLE).

5. RESULTS



**LUŽNICE TAKES MAIN
PART ON FLOOD INFLOWS
TO THE CITY**



**NEŽÁRKA TAKES MAIN
PART ON FLOOD INFLOWS
TO THE CITY**

5. RESULTS

- 4. A FLOOD MITIGATING EFFECT OF BOTH THE RESORVOIRS CAN BE EXPECTED DOWNSTREAM OF THE JUNCTION:
 - THE EFFECT INCREASES WITH HIGHER FLOOD CONTROL STORAGES V_0
 - THE EFFECT DECREASES WITH INCREASING BOTH THE CATCHMENT AREA AND THE VALUE OF HARMLESS DISCHARGE D_h
 - WITH REGARD TO HYDROLOGICAL COMPLEXITY OF AREA, AN ADDITIONAL EVALUATION IS SUITABLE FOR PROPER ENUMERATION.



THANK YOU FOR YOUR ATTENTION