

Mega Rice Project in Central Kalimantan, Indonesia -- Change Detection of Block A at Dadahup area (Rivers Barito, Kapuas Murung and Mengkatip)

ABSTRACT

The development of wetland for sawah rice cultivation in Indonesia is not new. The big scale sawah rice field "Mega Rice Project" was initiated in 1995 by Presidential Decree No. 82. (Development of One Million Hectares of Peatland for Food Crop Production in the Province of Central Kalimantan, Peat reclamation). The settlement of 350,000 families into this area was planned by the Ministry of Transmigration. Until today, approx. 13,000 families in the Dadahup - Larnunti region were settled, facing hard conditions on clear-felled areas. Over 4000km of channels were built with high time pressure from Spring 1996 to 1998 (compare satellite images from these period) using US\$ 225 million from the Indonesian reforestation fund. The winners were forest industry and canal construction companies. After the Indonesian economic crisis of 1997/1998 the financial situation became worse. During this time frame, between autumn 1997 and spring 1998, draught and heavy fires mewed as well.

Dr. H.-D.V. Bohm, Dr. F. Siegert and N. Zain Muhamad
Kalteng Consultants
Kirchstockacher Weg 2, 85635 Hohenkirchen, Germany
Tel.: +49-8102-774848, Fax.: +49-8102-774850
e-mail: viktorboehm@t-online.de
<http://www.rhc.atikalteng>

Abstract (continued)

The fragile peat swamp eco-system was cleared or burned. Most of the Central Kalimantan fires 21 1997/98 were man-made. Huge amounts of stored carbon were released into the atmosphere. Peatland destruction is an irreversible process. Countless floats transport timber over black-water lakes and along channelssand rivers. Big areas of ecologically damaged peat-landscape are visible from the air. The huge peatdomes between the main rivers Barite, Kapuas, Kahayan and Sebangau pose massive problems for the hydrology. The region is drying out, the water table is low, questions of the water management remain unsolved. The soil of the "Mega-Rice-Project is largely unsuitable for rice plantation due to the big peatlayers found there. The normal peat pH value is between 3 and 4. The tragedy of this peatland eco-system with its many plants and animals is very severe. The time sequence (May 1996 to March 1998) of the images below are taken from an area in the Block-A of the Mega Rice Project around Dadahup.

LAN DSAT-TM



Figure 1: LANDSAT-TM RGB = 543, 10 May 1996
me c o n a c t = n n e l s r e e m e M e n .



Figure 2: LANDSAT-TM RGB = 543, 29 May 1997

us = I : r . " " " " " t r o n r : " " " I n t r m ' h 7 .
n 7 . = g g e a t e l a w a n g f e g e l a n v i e l l e i n g r e e n c o l o u r .

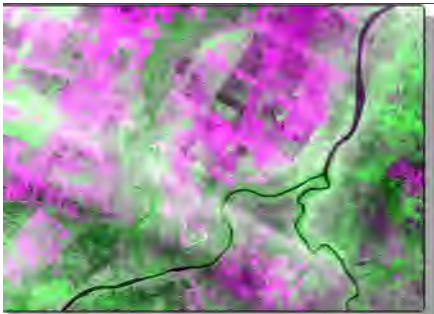


Figure 3: LANDSAT-TM RGB = 747, 29 March 1998

F l e r d e = = = = = = = = = = = 1 1 7 7 1 . 4 1 . . .
H a r d l y n o p e a t s w a m p e m u w e r e & ! e . ! i n t h e i m a g e .

Radar (ERS/Radarsat)



Figure 4: ERS Change detection image taken on 7 Nov 1996, 18 Sep. 1997.

h e 1 = M u s e
s l u e c o l o u r s w e O c A e t h e i m a g e i n t e . w a t e r .



Figure 5: ERS filter technique. 27 Nov. 1997.

h e e d s e o u r e " " " " " g t e c h n i q u e
o e n e r " " " 7 1 1 : 1 7 " " " r " " r e s .

Mere clear cuts a

Fig. a n . " m u l l i n g m a k e 4 s e e n i n t h e i m a g e .



Figure 6: RADARSAT filter technique. 28 Nov. 1997.

T h e I I A D A R , S A T i m a g e s h o w s R G B c o l o u r s e l l e r d i f f e r e n t M i n g t e c h n i q u e s .
e 7 = 5 3 1 = r e t = r s t =

SPOT

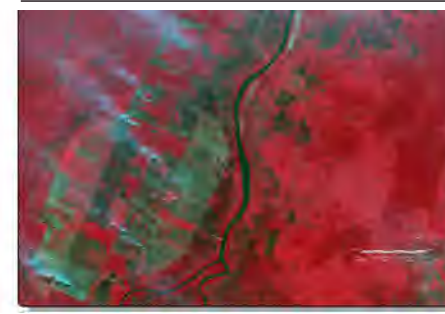


Figure 7: SPOT image from 29 July 1997.

B u r n t s e a r s a p p e a r i n g r e e n i s h c o l o u r , a n d p e a t s w a m p f o r e s t a n d v e g e t a t i o n i s s h a m r e d i s h c o l o u r .
C o n s t r u c t i o n o f n e w c a n a l s i s v i s i b l e . F i r e s a n d t h e c o n s t r u c t i o n o f n e w c a n a l s i s v i s i b l e .

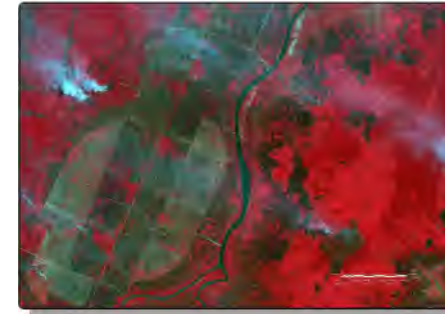


Figure 8: SPOT image from 8 September 1997.

B u r n t w a n a p p l a i n a w a m n o v e g e t a . I s s h a m i n r e d . c o .
o b l e , c o m p a r e F i g u r e 7 b o v e , c o u r t e s y o f C P I S B , S i n a p o r e .

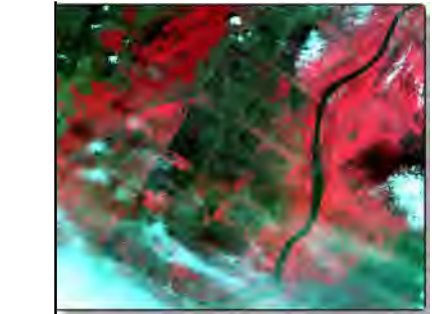


Figure 8: SPOT image from 25 January 1998.

T h e i m a g e a g a i n a l l o w s p a r t o f t h e M e g a R i c e P r o j e c t a f t e r a b i g f i r e i n 1 0 0 7 w i t h a t t . . .
e / e n . (I m a g e c o u r t e s y o f C P I S B , S i n a p o r e)